IN THE CLAIMS

1. (Currently Amended) A method of synthesis of a chemical compound having the formula A-B-C

where the A is a chemiluminescent moiety comprising a phthalhydrazide,

B is an energy acceptor moiety, and

C is a biologically active moiety

comprising the steps of

forming a benzophenone,

forming a diaryl ethylene, and

~~performing~~ comprising the steps of at least one of

(a) forming benzophenone;

(b) forming a diaryl ethylene;

(c) attaching a precursor to generate a phthalhydrazide; ~~such as phthalimide, aminophthalic acid diester, aminophthalic acid dihydrazide, aminophthalic anhydride and phthalhydrazide protected by a hydrolyzable group to form the precursor-ethylene conjugate, and~~

(d) condensing two ethylene-precursor conjugates to form a precursor-pentadiene conjugate; ~~, and~~

(e) ~~(b)~~ condensing two diaryl ethylene to form a pentadiene; ~~, and~~

(f) attaching a precursor to a pentadiene generate a phthalhydrazide ~~such as phthalimide, aminophthalic acid diester, aminophthalic acid dihydrazide, aminophthalic anhydride and phthalhydrazide protected by a hydrolyzable group,~~ to form a ~~the~~ precursor-pentadiene conjugate; ~~,~~ and

(g) converting ~~the~~ a precursor to the phthalhydrazide by at least one of the corresponding reactions

phthalimide with hydrazine,

aminophthalic acid diester with hydrazine,

aminophthalic anhydride with hydrazine, and

hydrolysis of phthalhydrazide protected by a hydrolyzable group to form a carrier compound, and

reacting the carrier compound with the biologically active moiety to form a corresponding conjugate.

2. (Original) The method of synthesis of the compound of claim 1 wherein the compound

serves to delivery the C moiety to a desired biological compartment.

3. (Original) The method of synthesis of the compound of claim 1 wherein the compound is a prodrug.

4. (Original) The method of synthesis of the compound of claim 3 wherein the compound serves as a prodrug for at least one of antiviral agents for the treatment of viral infections and anticancer agents for the treatment of cancers.

5. (Original) The method of synthesis of the compound of claim 4 wherein the compound serves as a prodrug for the treatment of at least one of the group of viruses comprising Human Immunodeficiency Virus (HIV), herpes viruses such as Herpes Simplex Virus, (HSV), Epstein-Barr Virus (EBV), Varicella Zoster (VZV), Cytomegalovirus (CMV), HSV-6, and HSV-8 (Kaposi's sarcoma), Human Papilloma Virus (HPV), rhinoviruses, and hepatitis-linked viruses.

6. (Original) The method of synthesis of the compound of claim 4 wherein the compound serves as a prodrug for the treatment of at least one of the group of cancers comprising colon, breast, lung, renal, retinal, and skin.

7. (Original) The method of synthesis of the compound of claim 3 wherein the prodrugs have increased bioavailability.

8. (Original) The method of synthesis of the compound of claim 2 wherein the compound is a cellular permeant prodrug.

9. (Original) The method of synthesis of the compound of claim 8 wherein intracellular drug release occurs when the prodrug reacts with cellular free radicals via a mechanism involving chemiluminescence, photochromism, and intramolecular energy transfer.

10. (Original) The method of synthesis of the compound of claim 1 wherein the C moiety is a pharmaceutical agent or drug.

11. (Original) The method of synthesis of the compound of claim 10 wherein the pharmaceutical agent is at least one of the group of antilipidemic drugs, anticholesterol drugs, contraceptive agents, anticoagulants, anti-inflamatory agents, immuno-suppressive drugs,

antiarrhythmic agents, antineoplastic drugs, antihypertensive drugs, epinephrine blocking agents, cardiac inotropic drugs, antidepressant drugs, diuretics, antifungal agents, antibacterial drugs, anxiolytic agents, sedatives, muscle relaxants, anticonvulsants, agents for the treatment of ulcer disease, agents for the treatment of asthma and hypersensitivity reactions, antithroboembolic agents, agents for the treatment of muscular dystrophy, agents to effect a therapeutic abortion, agents for the treatment of anemia, agents to improve allograft survival, agents for the treatment of disorders of purine metabolism, agents for the treatment of ischemic heart disease, agents for the treatment of opiate withdrawal, agents which activate the effects of secondary messenger inositol triphosphate, agents to block spinal reflexes, and antiviral agents including a drug for the treatment of AIDS.

12. (Original) The method of synthesis of the compound of claim 1 wherein the C moiety is released by an oxidation reduction reaction with the target cell's electron carriers or by reaction with free radicals produced as a consequence of electron transport.

13. (Original) The method of synthesis of the compound of claim 12 wherein the C moiety is released into a desired compartment in active form.

14. (Original) The method of synthesis of the compound of claim 13 wherein the released C moiety has a greater therapeutic effect or therapeutic ratio relative to the free C agent alone.

15. (Original) The method of synthesis of the compound of claim 14 wherein the released C moiety has a greater therapeutic effect or therapeutic ratio relative to the free C agent alone as a consequence of at least one of altered pharmacokinetics or pharmacodynamics such as a desirable kinetics of release, a resistance to inactivation or excretion, greater solubility, enhanced absorption, a diminished toxicity, or greater access to the cellular or biological compartment which is the site of action of C.

16. (Original) The method of synthesis of the compound of claim 1 wherein A represents a functionality which undergoes at least one of

an oxidation reduction reaction where electrons are transferred directly between A and the target cell's electron carriers, and

a reaction with free radicals of oxygen which are produced as a consequence of electron transport

such that an excited state is produced in A as a consequence of its participation in one of

these reactions.

17. (Original) The method of synthesis of the compound of claim 16 wherein A undergoes intramolecular energy transfer from its own excited state to the B functionality which is an energy acceptor.

18. (Original) The method of synthesis of the compound of claim 17 wherein upon receiving energy from A, B achieves an excited state which relaxes through heterolytic cleavage of the covalent bond of B with C where C is a drug moiety which is released into the environment.

19. (Original) The method of synthesis of the compound of claim 18 wherein the released drug molecule effects a therapeutic functional change by a mechanism which comprises receptor mediated mechanisms including reversible and irreversible competitive agonism or antagonism including a molecule known as a suicide substrate or a transition state analogue mechanism or a noncompetitive or uncompetitive agonism or antagonism or the action is by a nonreceptor mediated mechanism including a "counterfeit incorporation-mechanism".

20. (Currently Amended) ~~The~~ A method of synthesis of a chemical ~~the~~ compound ~~of claim 1~~ having the formula A-B-C

where ~~wherein the~~ A is a chemiluminescent moiety;

B is an energy acceptor moiety, and

C is a biologically active moiety

the method comprising the steps of condensing A and B to form a conjugate A-B and reacting the conjugate A-B wth C wherein the chemiluminescent moiety comprises a molecule selected from ~~comprises at least one of~~ the group consisting of

molecules undergoing reaction involving peroxides and oxygen free radicals,

molecules undergoing reaction involving oxidation or reduction, and

molecules undergoing both reaction with peroxides and oxygen free radicals followed by an oxidation or reduction reaction.

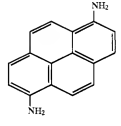
21. (Original) The method of synthesis of the compound of claim 20 wherein the chemiluminescent molecule comprises at least one of the group of luminol and its derivatives, lucigenin and its derivatives, Lophine and its derivatives, acridinium esters and acridans, tetraphenylpyrrole, phthalhydrazides, acyloins, biacridinium salts, vinylcarbonyls, vinylnitriles, tetrakis (dimethylamino) ethylene, acylperoxides, indoles, tetracarbazoles and active oxalates.

22. (Original) The method of synthesis of the compound of claim 20 wherein the chemiluminescent molecule comprises at least one of the group of ruthenium chelates 2, 6-diaminopyrene, or cation radicals and molecules which follow a Chemically Initiated Electron Exchange Luminescence mechanism such as certain dioxetans and dioxetanones.

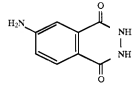
23. (Original) The method of synthesis of the compound of claim 20 wherein the chemiluminescent molecule comprises at least one of the group of dioxene derivatives and other compounds that form a dioxetan by reaction with superoxide and then produce efficient chemiluminescence by a CIEEL mechanism.

24. (Curently Amended) The method of synthesis of the compound of claim 20 wherein the chemiluminescent molecule comprises at least one of the group of

2,6-diaminopyrene



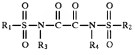
Aminophthalhydrazide



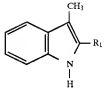
Dioxene

Imidazole derivatives

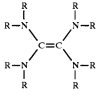
Sulfonyloxamides



Indole derivatives



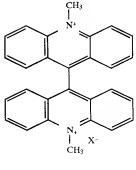
Tetrakis(dialkylamino)-ethylene



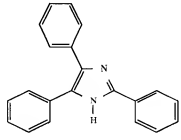
2,5,7,8-tetraoxabicyclo-[4.2.0.] octane

Dioxetan

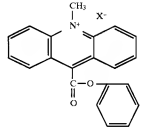
Lucigenin



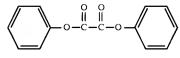
Lophine



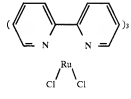
Acridinium esters



Active oxalate

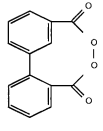


Tris-2,2'-bipyridinedi-chlororuthenium (II)



Dioxetanone

Dipheyl peroxide



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25. (Currently Amended) The method of synthesis of the compound of claim ~~1~~ 20 wherein the energy acceptor moiety B ~~moiety~~ is a photochromic compound.

26. (Original) The method of synthesis of the compound of claim 25 wherein the

photochromic compound comprises one which demonstrate photochromic behavior with electromagnetic radiation and bleaching agents.

27. (Original) The method of synthesis of the compound of claim 26 wherein the A functionality is chemiluminescent, and the B functionality is such that the photodissociative drug release spectrum of B overlaps the chemiluminescence spectrum of A.

28. (Original) The method of synthesis of the compound of claim 25 wherein the photochromic compound comprises a cationic dye.

29. (Original) The method of synthesis of the compound of claim 28 wherein the cationic dye comprises at least one of a di and triarylmethane dyes, triarylmethane lactones and cyclic ether dyes, cationic indoles, pyronines, phthaleins, oxazines, thiazines, acridines, phenazines, and anthocyanidins, and cationic polymethine dyes and azo and diazopolymethines, styryls, cyanines, hemicyanines, dialkylaminopolyenes, and other related dyes.

30. (Currently Amended) The method of synthesis of the compound of claim 28 wherein the cationic dye comprises at least one of

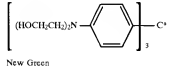
Malachite Green	42000
Helvetia Green	42020
Basic Blue 1	42025
Brilliant Blue	
Setoglaucine	
Basic Green 1	42040
Brilliant Green	
Acid Blue 1	42045
Xylene Blue VS	
Patent Blue V	
Alphazurine 2G	
Acid Blue 3	42051
Brilliant Blue V	
Patent Blue V	
Food Green 3	42053

FDC Green 3	
Acid Green 6	42075
Light Green SF Bluish	
Acid Blue 7	42080
Xylene Blue AS	
Patent Blue A	
Acid Green 3	42085
Acid Blue 9	42090
Erioglaucine	
Acid Green 5	42095
Light Green SF Yellowish	
Acid Green 9	42100
Erioviridene B	
Acid Blue 147	42135
Xylene Cyanol FF	
Basic Red 9	42500
Pararosaniline	
Basic Violet 14	42510
Fuchsin	
Magenta	
Basic Fuchsin	42510B
Basic Violet 2	42520
New Magenta	
Hoffman Violet	42530
Iodine Violet	
Basic Violet 1	42535
Methyl Violet	
Basic Violet 13	42536
Methyl Violet 6B	
Basic Violet 3	42555
Crystal Violet	
Gentian Violet	
Iodine Green	42556
Basic Blue 8	42563
Victoria Blue 4R	

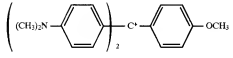
Acid Blue 13	42571
Fast Acid Violet 10B	
Acid Blue 75	42576
Eriocyanine A	
Methyl Green	42585
Ethyl Green	42590
Basic Violet 4	42600
Ethyl Violet	
Acid Violet 49	42640
Wool Violet 5BN	
Acid Blue 15	42645
Brilliant Milling Blue B	
Acid Violet 17	42650
Acid Violet 6B	
Wood Violet 4BN	
Formyl Violet	
Acid Violet 5BS Conc.	
Acid Violet 19	42685
Acid Fuchsin	
Red Violet 5R	42690
Acid Blue 22	42755
Aniline Blue	
Soluble Blue	
Solvent Blue 3	42775
Solvent Blue 3	42780
Methyl Blue	
Aurin	43800
Mordant Blue 3	43820
Eriochrome Cyanine R	
Acid Green 16	44025
Naphthalene Green V	
Pontacyl Green NV Extra	
Basic Blue 11	44040
Victoria Blue R	
Basic Blue 15	44085

Night Blue
Acid Green 50 44090
Wool Green S
Kiton Green S. Conc.
Basic Green 3
Sevron Green B
Brilliant Blue F & R Extra
Brilliant Green Sulfonate
Hexakis (hydroxyethyl)

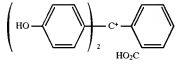
Pararosaniline



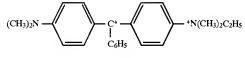
New Green



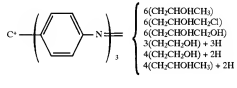
Phenolphthalein



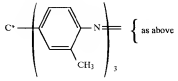
Malachite Green Etbiodide



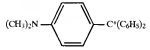
Hydroxyalkylated Pararosanilines



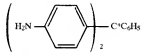
Hydroxyalkylated New Fuchsins



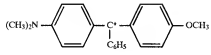
New Yellow



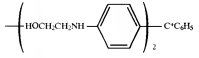
Doebner's Violet



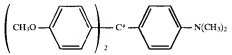
New Red



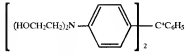
Bis(hydroxyethyl) Doebner's Violet



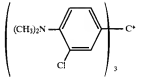
"New Magenta"



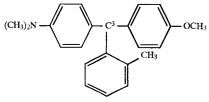
Tetrakis(hydroxyethyl) Doebner's Violet

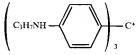


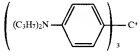
Trichloro Crystal Violet

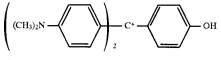


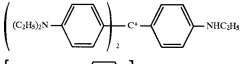
Slow Red

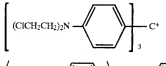


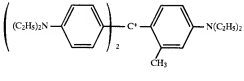


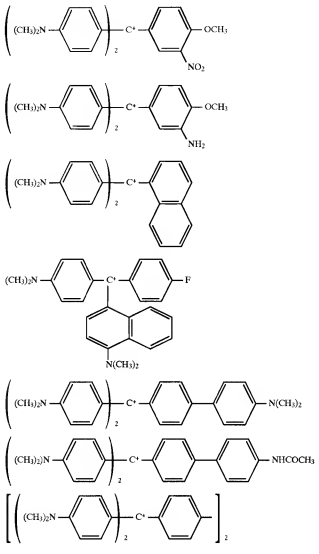












[[

[a] Only the cyanide, bisulfite, and hydroxide ions are considered, regardless of the other anions present in the solution.

[b] More detailed descriptions of the compositions of photochromic materials tested are given in Macnair's review [255; tables 1A-4].

[c] Ethanol.

[d] Diethyl ether.

[e] 1,2-Dichloroethane.

[f] 1,1-Dichloroethane, cyclohexane-1,1-dichloroethane, or cyclohexane-1,2-dichloroethane mixtures.

[g] Benzene.

[h] Dimethylsulfoxide, neat and aqueous.

[i] Acetone.

[J] ACETIC ACID.

[k] Ethyl acetate.

[l] Ethyl bromide.

[m] 2-Methoxyethanol.

[n] Chloroform.

[o] Ethanol with KCN.

[p] Ethanol wiih KOH.

[q] Carboxylic acids-acetic to stearic; hydrocinnamic acid; ethyl and butyl acid phthalates.

[r] Octadecylnitrile, tributyl phosphate, aniline, 2-(p-tert-butylpheno xy)ethanol, tetraethyleneglycol dimethyl ether, or poly(ethylene glycols).

[s] Amides-formamide to stearamide; methylformamide or methylacetamide; dimethyl- or diethyl-formamide or acetamide.

[t] Three-to-one solutions of cellulose acetate with any of the following five-to-one plasticizer mixtures: butyl stearate, Polyethylene Glycol 600-butyl acetoxystearate, butyl stearate, or Dowanol EP-butyl acetoxystearate.

[u] Water containing SO_2.

[v] Water containing bisulfite and papain.

[w] Poly(vinyl alcohol) with dimethylsulfoxide (5:1).

[x] Films, containing residual solvent, cast from the following solutions: ethanol-acetone solutions of vinyl acetate-vinyl alcohol copolymer; aqueous poly(vinyl alcohol); aqueous poly(vinyl pyrrolidone); or aqueous methyl vinylether-maleic acid copolymer.

[y] Methanol-dioxane with aqueous $NH_4 HSO_3$.

[z] Paper impregnated with a toluene solution of poly(methyl methacrylate), stearic acid, and 2-(p-tert-butylphenoxy)ethanol, then dried.

[aa] Intramicellar impregnation of cellulose with the following swelling agents: n-propylamine, n-butylamine, n-hexylamine, 2-aminoethanol, dimethylformamide, acetic acid, dimethylsulfoxide, methylacetamide, dimethylacetamide, or formamide.

[bb] Films cast from an approximately 4:3 mixture of a 20% solution and cellulose acetate butyrate in toluene-ethyl acetate (1:1) and triallycyanurate in dioxane.

[CC] FILMS CAST FROM A 2:1 MIXTURE OF A 25% SOLUTION OF CELLULOSE ACETATE BUTYRATE IN TOLUENE-ETHYL ACETATE (1:1) AND THE TITANIUM ESTERS OF N,N,N', N'-TETRAKIS(2-HYDROXYPROPYL) ETHYLENEDIAMINE.

[dd] Pure water.

[cc] Films cast from aqueous gelatin or other hydrocolloids.

[ff] Dimethylsulfoxide with methanolic KCN.

[gg] 2-Methoxyethanol with methanolic KCN.

[hh] Water or aqueous methanol containing bisulfite.

[ii] Paper impregnated with m-dimethoxybenzene, acetonitrile, acetic acid, or phenyl methyl carbinol.

[jj] Ethanol-benzene.

[kk] Aqueous ethanol, methanol, aqueous methanol, aqueous acetone, benzene-methanol, carbon tetrachloride-methanol, cyclohexane-methanol, or chloroform-methanol.

[ll] Films cast from 3:1 solutions of cellulose acetate and either Polyethylene Glycol 600 .RTM. or ethylene glycol phenyl ether as plasticizer.

[mm] Films, containing residual solvent, cast from solutions of either cellulose acetate in 2-methoxyethanol or poly(vinyl alcohol) in aqueous ethanol.

[nn] Films, containing residual solvent, cast from solutions of either cellulose acetate butyrate in 2-methoxyethanol or poly(vinyl acetate) in methanol.

[oo] Ethanol containing ammonia.

[pp] Aqueous methanol containing NH_4HSO_3 and urease.

[qq] Aqueous methanol containing NH_4HSO_3, with or without sodium dithionite.

[rr] Aqueous acid at pH 1.

[ss] Aqueous ammonia containing KCN.

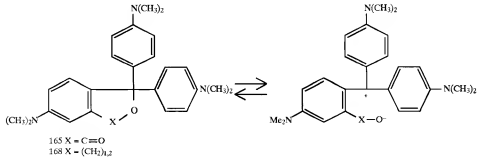
[tt] Paper impregnated with aqueous solutions with or without hydrocolloids.

[uu] 2-Methoxyethanol containing HCl.

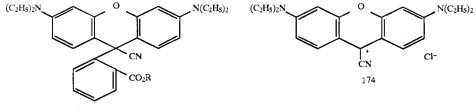
[vv] Aqueous methanol containing NH_4HSO_3, and glucose oxidase.

[ww] 9:1 Methanol-water.

[xx] Aqueous NaOH.]]

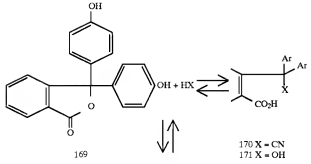


165 X = C=O
168 X = $(CH_2)_{1,2}$



172 R = Na
173 R = H

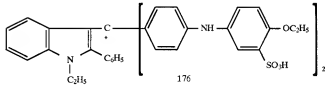
174



169

170 X = CN
171 X = OH

$H^+ + X^-$



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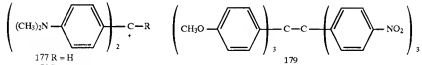
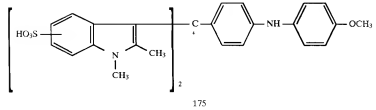


177 R = H
178 R = NH_2

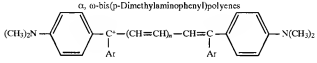
179



175

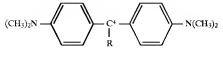
Photochromic Polymethine Dyes

α, ω-bis(p-Dimethylaminophenyl)polyenes

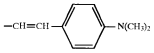


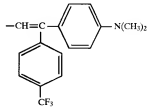
Ar	n
C_6H_5	0, 1, 2
4-$(CH_3)_2NC_6H_4$	0, 1, 2
4-$(CH_3)_2CHC_6$ H_4	0, 1, 2, 3, 4
4-$CH_3OC_6H_4$	0, 1, 2
4-$C_4H_9OC_6H_4$	0, 1, 2
3-$CH_3C_6H_4$	1, 2
4-t-$C_4H_9C_6H_4$	1, 2
4-$C_2H_5OC_6H_4$	1, 2
4-$C_5H_{11}C_6H_4$	1, 2
4-FC_6H_4	1
4-Fsub$_3$CC_6H_4	1
2-(C_6H_5)2NC6H4	1
3,4-$H_2N(OCH_3)C_6H_3$	1
2-Naphthyl	1, 2
4-ClC_6H_4	2
2,4-$Cl_2C_6H_3$	2
1-Naphthyl	2

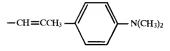
α, α-bis(p-dimethylaminophenyl)polyenes

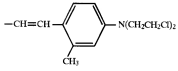


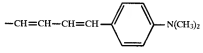
R R

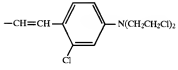


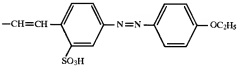


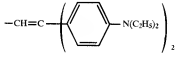


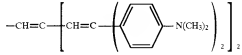


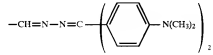


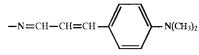


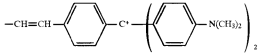


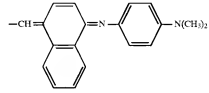


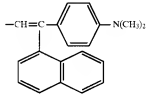


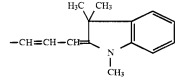




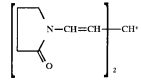


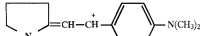


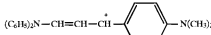


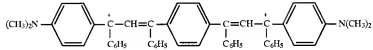


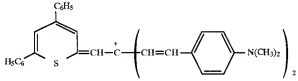
Miscellaneous polyenes

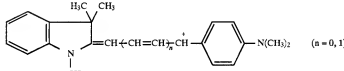


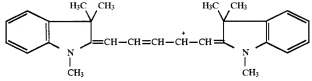




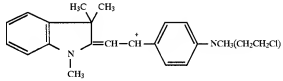






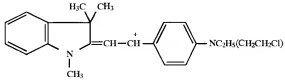


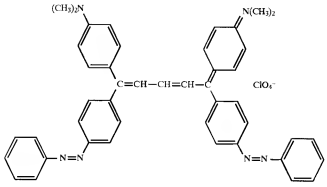
Basic Red 13

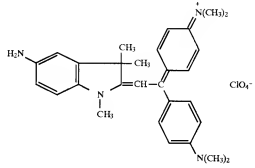


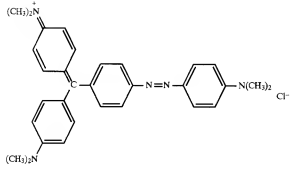
Basic Violet 7

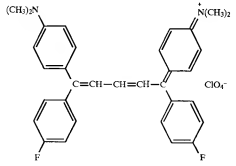
Basic Red 14
Basic Red 15
Basic Violet 15

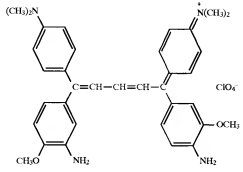


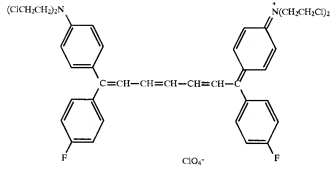


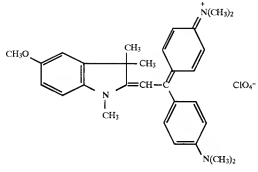


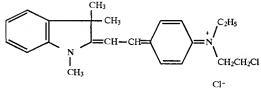


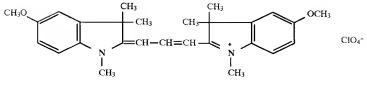


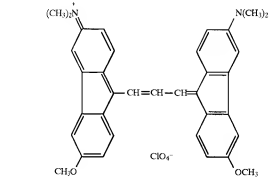


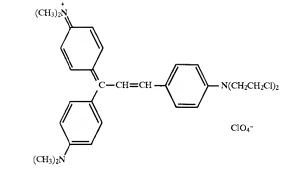


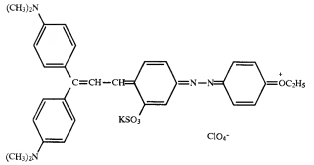


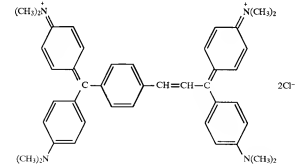


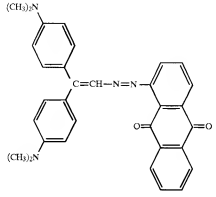


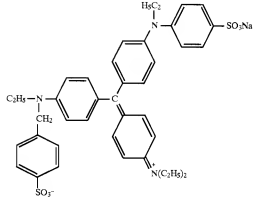


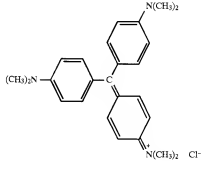


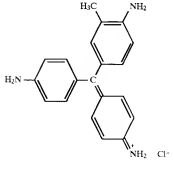


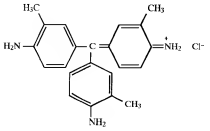


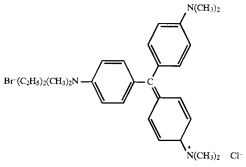


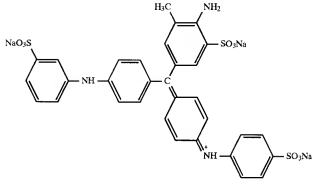


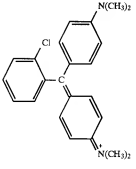


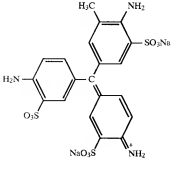


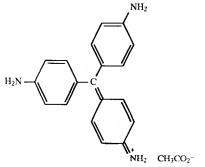


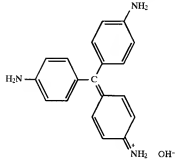


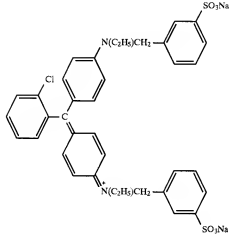


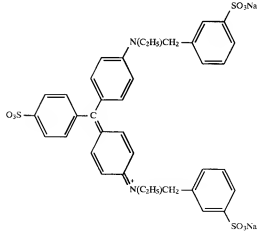


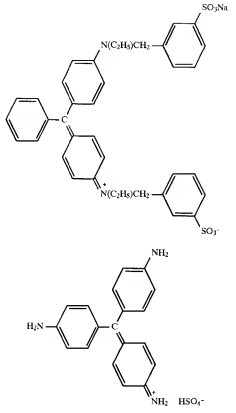



NH2
H2N
C
NH2
CH3CO2-


NH2
H2N
C
NH2
OH-

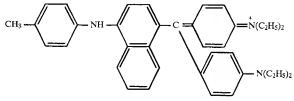

SO3Na
N(C2H5)CH2
Cl
C
N(C2H5)CH2
SO3Na


SO3Na
N(C2H5)CH2
O3S
C
N(C2H5)CH2
SO3Na

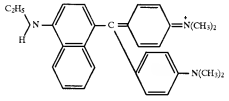

SO3Na
N(C2H5)CH2
C
N(C2H5)CH2
SO3−
NH2
H2N
C
NH2
HSO4−

Salt-isomerism type phototropic dyes

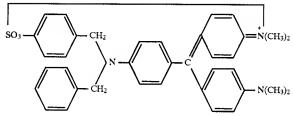
Night Blue



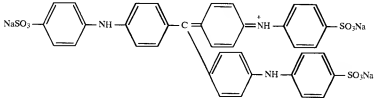
Victoria Blue R



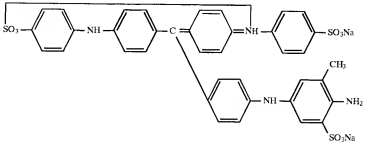
Brilliant Milling Blue B
Brilliant Blue F & R Ex.
Eriocyanine A



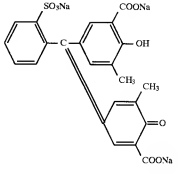
Methyl Blue



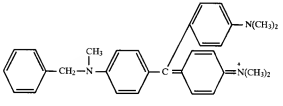
Aniline Blue



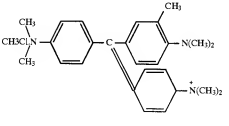
Eriochrome Cyanine R



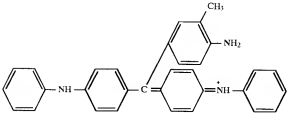
Methyl Violet 6B



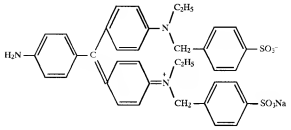
Iodine Green



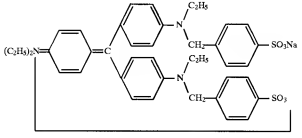
Aniline Blue



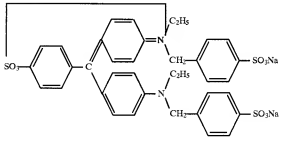
Wool Violet 5 BN



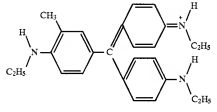
Wool Violet 4 EM



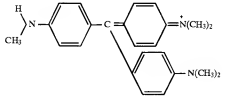
Light Green SF
Yellowish



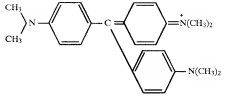
Iodine Violet



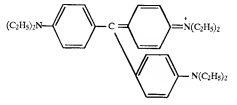
Methyl Violet



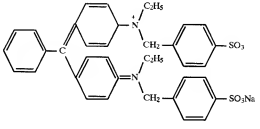
Crystal Violet



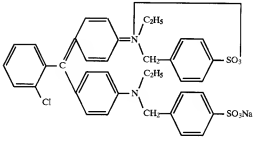
Ethyl Violet



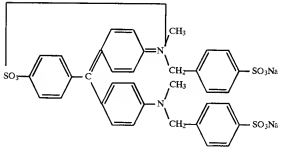
Acid Green L Extra



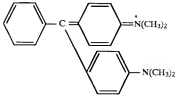
Erioviridene B



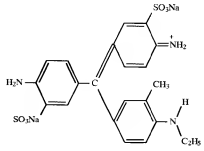
Light Green SF



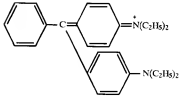
Victoria Green
(Malachite Green)



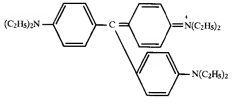
Red-Violet 5R



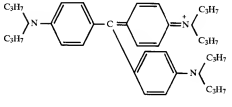
Brilliant Green "B"



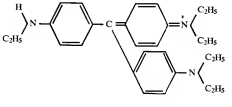
Di-[4(N,N-diethylamine)phenyl]-[4-(N,N-diethyl-amine-2-methyl) phenyl] methyl carbonium



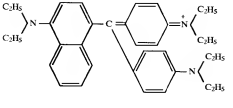
Tri-[4(N,N-dipropylamino)phenyl] methyl carbonium



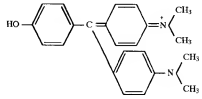
Di-[4(N,N-diethylamino)phenyl]-[4(ethylamino)-phenyl] methyl carbonium



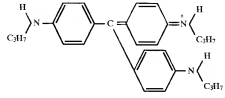
Di-[4(N,N-diethylamino)phenyl]-[6(N,N-diethyl-amino)naphthyl] methyl carbonium



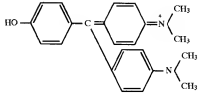
Di-[4(N,N-dimethylamino)phenyl]-[4(hydroxy)phenyl]
methyl carbonium



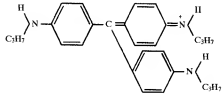
Tri-[4(N-propylamino)phenyl] methyl carbonium



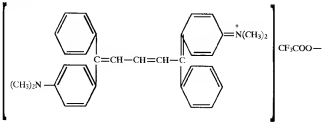
Hectolene Blue DS-1398
Hectolene Blue DS-1823
Sevron Brilliant Red 4G
Di-[4(N,N-dimethylamino)phenyl]-[4(hydroxy)phenyl]
methyl carbonium



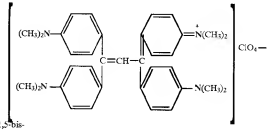
Tri-[4(N-propylamino)phenyl] methyl carbonium



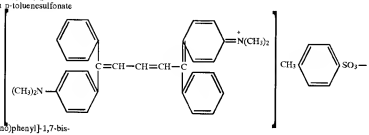
Hectolene Blue DS-1398
Hectolene Blue DS-1823
Sevron Brilliant Red 4G
Genacryl Red 6B
Genacryl Pink G
Sevron Brilliant - Red B
Sevron Brilliant - Red 3B
1,5-bis-[4(N,N-dimethylamino)phenyl]-1,5-bis-
(phenyl)divinyl carbonium trifluoroacetate



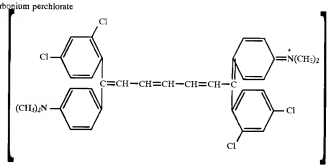
1,1,3,3-tetrakis[4(N,N-dimethylamino)phenyl] vinyl carbonium perchlorate



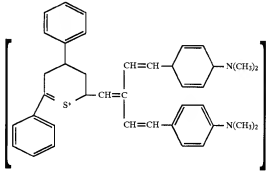
1,5-bis-[4(N,N-dimethylamino)phenyl]-1,5-bis-(phenyl) divinyl carbonium p-toluenesulfonate



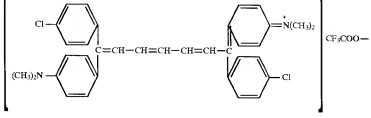
1,7-bis[4(N,N-dimethylamino)phenyl]-1,7-bis-(2,4-dichlorophenyl) trivinyl carbonium perchlorate



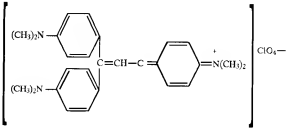
Di-[4(N,N-dimethylamino)phenyl vinyl]-[2,4-di-phenyl-6-methane thiopyran] methyl carbonium perchlorate



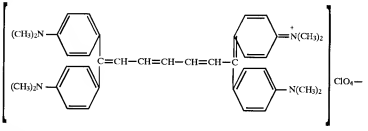
1,7-bis-[4(N,N-dimethylamino)phenyl]-1,7-bis-(4-chlorophenyl) trivinyl carbonium trifluoroacetate



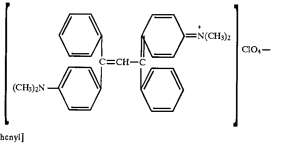
1,1,3-tris-[4-(N,N-dimethylamino)phenyl] divinyl carbonium perchlorate



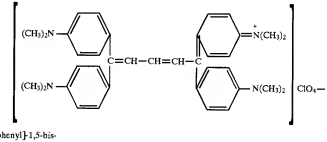
1,1,7,7-tetrakis-[4-(N,N-dimethylamino)phenyl] trivinyl carbonium perchlorate



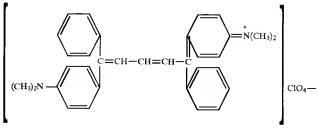
1,3-bis-[4-(N,N-dimethylamino)phenyl]-1,3-bis-(phenyl) vinyl carbonium perchlorate



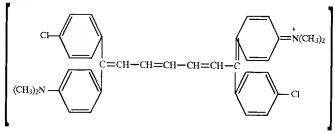
1,1,5,5-tetrakis-[4-(N,N-dimethylamino)phenyl] divinyl carbonium perchlorate



1,5-bis-[4-(N,N-dimethylamino)phenyl]-1,5-bis-(phenyl) divinyl carbonium perchlorate

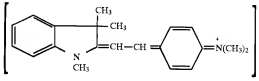


1,7-bis-[4-(N,N-dimethylamino)phenyl]-1,7-bis-(phenyl) trivinyl carbonium trifluoroacetate



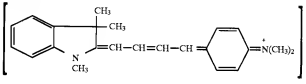
CF_3COO^-

1(1,3,3-trimethyl indoline)-2-[4-(N,N-dimethyl-amino)phenyl] ethylene carbonium perchlorate



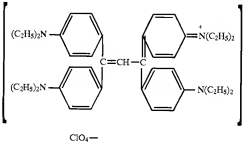
ClO_4^-

1(1,3,3-trimethyl indoline)-4-[4-(N,N-dimethyl-amino)phenyl] butylene carbonium perchlorate



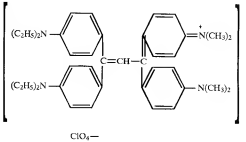
ClO_4^-

1,1,3,3-tetrakis-[4(N,N-diethylamino)phenyl] vinyl carbonium perchlorate



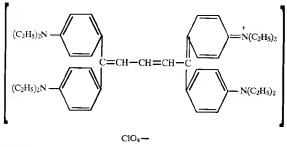
ClO_4^-

1,1-bis-[4-(N,N-diethylamino)phenyl]-3,3-bis-[4-(N,N-dimethylamino)phenyl] vinyl carbonium perchlorate

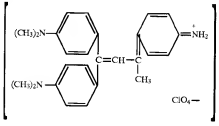


ClO_4^-

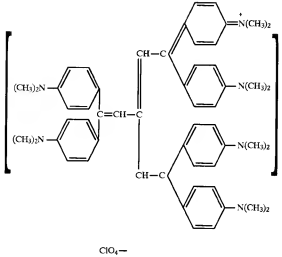
1,1,5,5-tetrakis-[4-(N,N-diethylamino)phenyl] divinyl carbonium perchlorate



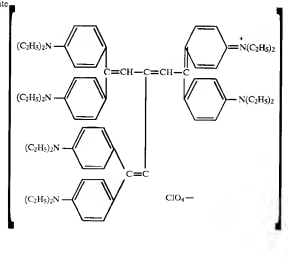
1,1-bis-[4-(N,N-dimethylamino)phenyl]-3-[4-(amino) phenyl]-3-methylvinyl carbonium perchlorate



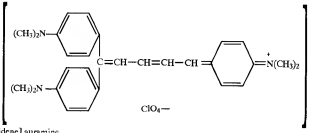
Tris-[1,1-bis-[4(N,N-dimethylamino)phenyl] ethylene] methyl carbonium perchlorate



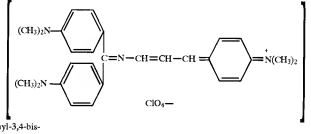
Tris-[1,1-bis-[4-(N,N-diethylamino)phenyl] ethylene] methyl carbonium perchlorate



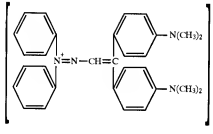
1,1,5-tris-[4-(N,N-dimethylamino)phenyl] divinyl carbonium perchlorate



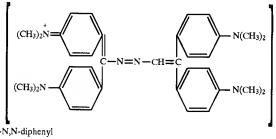
N[4-(N,N-dimethylamino) cinnamylidene] auramine



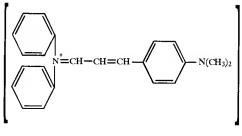
1,1-bis-[4-(N,N-dimethylamino)phenyl-3,4-bis-(phenyl)]-3,4-diazo butene carbonium



1,1,5,5-tetrakis-[4-(N,N-dimethylamino)phenyl]-2,3-diazo pentene carbonium

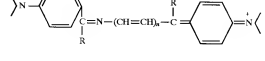


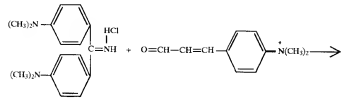
N-(N',N'-dimethylamino cinnamylidene)-N,N-diphenyl ammonium

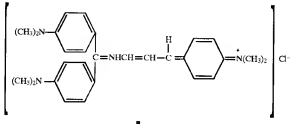


Azo Polymethines

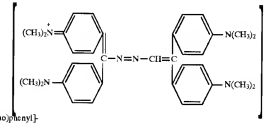
Dyes of the general structural type



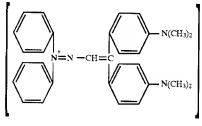




Photochromic diazepolymethines



1,1,5,5-tetrakis-[4-(N,Np-dimethylamino)phenyl]-2,3-diazo pentene carbonium



1,1-bis-[4-(N,N-dimethylamino)phenyl-3,4-bis-(phenyl)]-3,4-diazo butene carbonium

31. (Original) The method of synthesis of the compound of claim 10 wherein the C moiety is any molecule which exhibits bleaching behavior with the B moiety and has an increased therapeutic effect or therapeutic ratio as a consequence of its delivery as part of a prodrug.

32. (Original) The method of synthesis of the compound of claim 29 wherein the C moiety has a nucleophilic group that bonds to the B moiety.

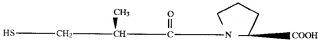
33. (Original) The method of synthesis of the compound of claim 32 wherein the C moiety is derivatized to have a nucleophilic group that bonds to the B moiety.

34. (Original) The method of synthesis of the compound of claim 33 wherein the C moiety is

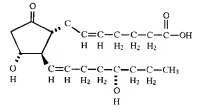
derivatized by at least one of the nucleophilic groups comprising cinnamate, sulfite, phosphate, carboxylate, thiol, amide, alkoxide, or amine.

35. (Currently Amended) The method of synthesis of the compound of claim 10 wherein the C moiety is at least one of the group of

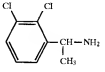
Captopril



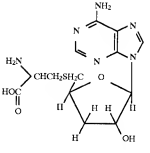
Prostaglandin E_2



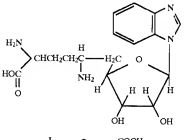
2,3-dichloro-α-methyl-benzylamine



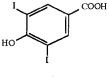
3'-deoxy-S-adenosyl-L-homocysteine



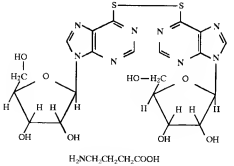
Sinefungin



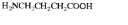
3,5-diiodo-4-hydroxy-benzoic acid



6,6'-dithiobis (9-B-D-ribofuranosylpurine)

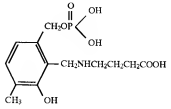


γ-aminobutyric acid

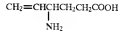


Gabaculine

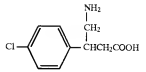
N-(5'-phosphopyridoxy)-4-aminobutyric acid



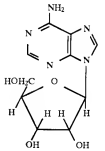
4-amino-hex-5-enoic acid



Baclofen

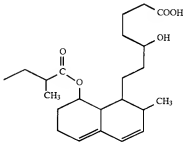


Adenosine

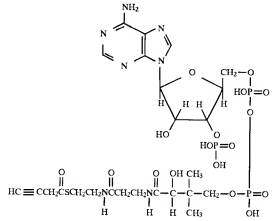


3-hydroxy-3-methyl-glutarate

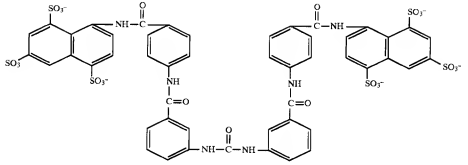
Campsctin



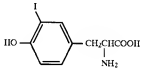
But-3-ynoyl-CoA



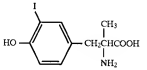
Suramin



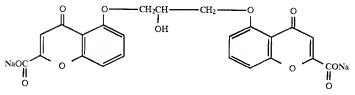
L-3-iodotyrosine



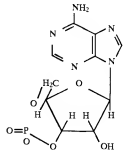
L-3-iodo-α-methyltyrosine



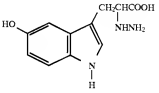
Disodium cromoglycate



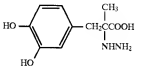
Adenosine 3',5'-cyclic monophosphate



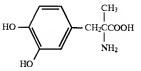
D,L-B-(5-hydroxy-3-indolyl)-α-hydrazinopropionic acid



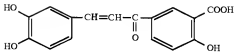
D,L-α-hydrazino-α-methyldopa



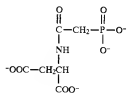
α-methyldopa



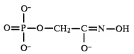
5-(3,4-dihydroxycinnamoyl)salicylic acid



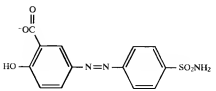
N-(phosphonacetyl)-L-aspartate



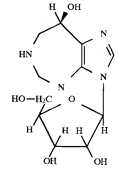
P-glycolohydroxamate



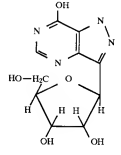
5-(p-sulfamylphenyl-azo)salicylic acid



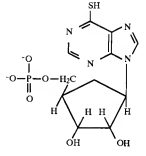
Coformycin



Formycin B



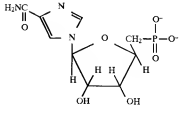
Thioinosinate



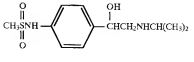
Phosphonoformate

Phosphonoacetate

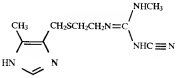
Ribavirin



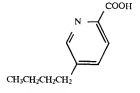
Sotalol



Cimetidine

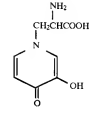


Fusaric acid

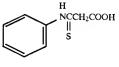


2-mercaptoethylamine

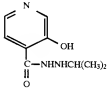
Mimosine



U-7130

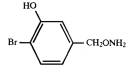


Iproniazid

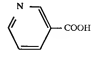


Trans-4-aminocrotonic acid

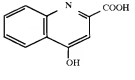
NSD 1055



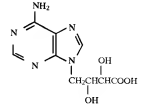
Nicotinic acid



Kynurenic acid

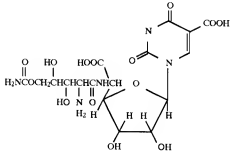


Lentysine

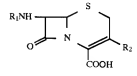


Orotic acid

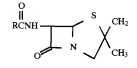
Polyoxin D



Cephalosporin



Penicillin



36. (Canceled)

37. (Original) The method of synthesis of the compound of claim 1 wherein the C moiety comprises at least one of the group of herbicides, fungicides, miticides, nematocides, fumigants, growth regulators, repellants, defoliants, rodenticides, molluscicides, algicides, desicants, antehelmintics, and bactericides.

38. (Currently Amended) The method of synthesis of the compound of claim 37 wherein the C moiety is a pesticide ~~one from the those given in Chemical Week Pesticides Register, Robert~~

~~P. Ovellette and John A. King, 1977, McGraw-Hill Book Company~~.

39. (Withdrawn) A method of synthesis of a chemical compound having the formula $(A\text{-}B\text{-}C)_X\text{-}P\text{-}E_Y$

where the A is a chemiluminescent moiety,

B is an energy acceptor moiety, and

C is a biologically active moiety, and

P is a substrate

E is an enzyme and x and y are integers

comprising the steps of

forming a benzophenone,

forming a diaryl ethylene,

attaching a phthalimide moiety to at least one of the aryl groups of the ethylene to form a phthalimide-ethylene conjugate,

condensing two ethylene-phthalimide conjugates to form a phthalimide-pentadiene conjugate,

converting the phthalimide to the phthalhydrazide by reaction with hydrazine to form a carrier compound, and

reacting the carrier compound with a biologically active moiety to form a corresponding conjugate,

reacting A-B-C with a polymer to form $(A\text{-}B\text{-}C)_X\text{-}P$, and

reacting E with $(A\text{-}B\text{-}C)_X\text{-}P$ to form $(A\text{-}B\text{-}C)_X\text{-}P\text{-}E_Y$.

40. (Withdrawn) The method of synthesis of the compound of claim 39 wherein the compound provides controlled extra cellular release of the C moiety.

41. (Withdrawn) The method of synthesis of the compound of claim 39 wherein the C moiety comprises at least one of drugs and proteins including enzymes and hormones.

42. (Withdrawn) The method of synthesis of the compound of claim 41 wherein the C moiety comprises at least one insulin, erythropoietin, interleuken 2, interferon, growth hormone, atrial natriuretic factor, tissue plasminogen activator, an anti-inflammatory drug, an antihypertensive drug, an inotropic drug, and a contraceptive drug.

43. (Withdrawn) The method of synthesis of the compound of claim 40 wherein extraacellular drug release occurs when the prodrug reacts with cellular free radicals via a mechanism involving chemiluminescence, photochromism, and intramolecular energy transfer.

44. (Withdrawn) The method of synthesis of the compound of claim 41 wherein the pharmaceutical agent is at least one of the group of antilipidemic drugs, anticholesterol drugs, contraceptive agents, anticoagulants, anti-inflamatory agents, immuno-suppressive drugs, antiarrhythmic agents, antineoplastic drugs, antihypertensive drugs, epinephrine blocking agents, cardiac inotropic drugs, antidepressant drugs, diuretics, antifungal agents, antibacterial drugs, anxiolytic agents, sedatives, muscle relaxants, anticonvulsants, agents for the treatment of ulcer disease, agents for the treatment of asthma and hypersensitivity reactions, antithroboembolic agents, agents for the treatment of muscular dystrophy, agents to effect a therapeutic abortion, agents for the treatment of anemia, agents to improve allograft survival, agents for the treatment of disorders of purine metabolism, agents for the treatment of ischemic heart disease, agents for the treatment of opiate withdrawal, agents which activate the effects of secondary messenger inositol triphosphate, agents to block spinal reflexes, and antiviral agents including a drug for the treatment of AIDS.

45. (Withdrawn) The method of synthesis of the compound of claim 43 wherein the C moiety is released by an oxidation reduction reaction with the target cell's electron carriers or by reaction with free radicals produced as a consequence of electron transport.

46. (Withdrawn) The method of synthesis of the compound of claim 43 wherein A represents a functionality which undergoes at least one of

an oxidation reduction reaction where electrons are transferred directly between A and the target cell's electron carriers, and

a reaction with free radicals of oxygen which are produced as a consequence of electron transport

such that an excited state is produced in A as a consequence of its participation in one of these reactions.

47. (Withdrawn) The method of synthesis of the compound of claim 46 wherein A undergoes intramolecular energy transfer from its own excited state to the B functionality which is an energy acceptor.

48. (Withdrawn) The method of synthesis of the compound of claim 47 wherein upon receiving energy from A, B achieves an excited state which relaxes through heterolytic cleavage of the covalent bond of B with C where C is a drug moiety which is released into the environment.

49. (Withdrawn) The method of synthesis of the compound of claim 39 wherein the chemiluminescent molecule comprises at least one of the group of

molecules undergoing reaction involving peroxides and oxygen free radicals,

molecules undergoing reaction involving oxidation or reduction, and

molecules undergoing both reaction with peroxides and oxygen free radicals followed by an oxidation or reduction reaction.

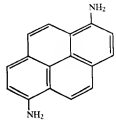
50. (Withdrawn) The method of synthesis of the compound of claim 49 wherein the chemiluminescent molecule comprises at least one of the group of luminol and its derivatives, lucigenin and its derivatives, Lophine and its derivatives, acridinium esters and acridans, tetraphenylpyrrole, phthalhydrazides, acyloins, biacridinium salts, vinylcarbonyls, vinylnitriles, tetrakis (dimethylamino) ethylene, acylperoxides, indoles, tetracarbazoles and active oxalates.

51. (Withdrawn) The method of synthesis of the compound of claim 49 wherein the chemiluminescent molecule comprises at least one of the group of ruthenium chelates 2, 6-diaminopyrene, or cation radicals and molecules which follow a Chemically Initiated Electron Exchange Luminescence mechanism such as certain dioxetans and dioxetanones.

52. (Withdrawn) The method of synthesis of the compound of claim 49 wherein the chemiluminescent molecule comprises at least one of the group of dioxene derivatives and other compounds that form a dioxetan by reaction with superoxide and then produce efficient chemiluminescence by a CIEEL mechanism.

53. (Withdrawn) The method of synthesis of the compound of claim 49 wherein the chemiluminescent molecule comprises at least one of the group of

2,6-diaminopyrene



Aminophthalhydrazide

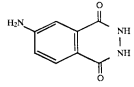


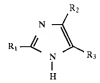
TABLE 1

Representative Chemiluminescent Molecules

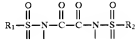
Name	Structure

Dioxene

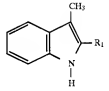
Imidazole derivatives



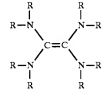
Sulfonyloxamides



Indole derivatives



Tetrakis(dialkylamino)-ethylene



2,5,7,8-tetraoxabicyclo-[4.2.0.] octane

Dioxetan

Lucigenin

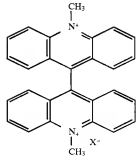
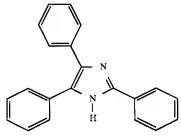
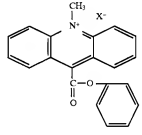
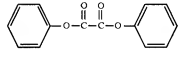
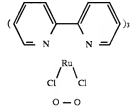
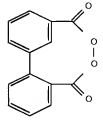


TABLE 1 continued

Representative Chemiluminescent Molecules

Name	Structure
Lophine	
Acridinium esters	
Active oxalate	
Tris-2,2'-bipyridinedi-chlororuthenium (II)	
Dioxetanone	
Dipheyl peroxide	

54. (Withdrawn) The method of synthesis of the compound of claim 39 wherein the B moiety is a photochromic compound.

55. (Withdrawn) The method of synthesis of the compound of claim 54 wherein the photochromic compound comprises one which demonstrate photochromic behavior with electromagnetic radiation and bleaching agents.

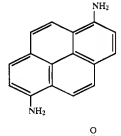
56. (Withdrawn) The method of synthesis of the compound of claim 55 wherein the A functionality is chemiluminescent, and the B functionality is such that the photodissociative drug release spectrum of B overlaps the chemiluminescence spectrum of A.

57. (Withdrawn) The method of synthesis of the compound of claim 54 wherein the photochromic compound comprises a cationic dye.

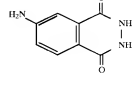
58. (Withdrawn) The method of synthesis of the compound of claim 57 wherein the cationic dye comprises at least one of a di and triarylmethane dyes, triarylmethane lactones and cyclic ether dyes, cationic indoles, pyronines, phthaleins, oxazines, thiazines, acridines, phenazines, and anthocyanidins, and cationic polymethine dyes and azo and diazopolymethines, styryls, cyanines, hemicyanines, dialkylaminopolyenes, and other related dyes.

59. (Withdrawn) The method of synthesis of the compound of claim 57 wherein the cationic dye comprises at least one of

2,6-diaminopyrene



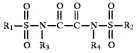
Aminophthalhydrazide



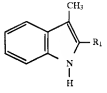
Dioxene

Imidazole derivatives

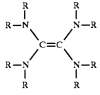
Sulfonyloxamides



Indole derivatives



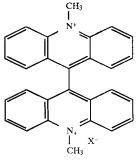
Tetrakis(dialkylamino)-ethylene



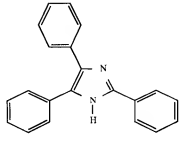
2,5,7,8-tetraoxabicyclo-[4.2.0.]octane

Dioxetan

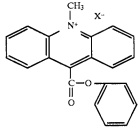
Lucigenin



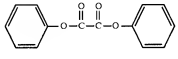
Lophine



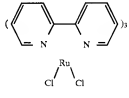
Acridinium esters



Active oxalate

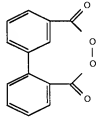


Tris-2,2'-bipyridinedi-chlororuthenium (II)



Dioxetanone

Dipheyl peroxide



60. (Withdrawn) The method of synthesis of the compound of claim 39 wherein the C moiety is any molecule which exhibits bleaching behavior with the B moiety and has an increased therapeutic effect or therapeutic ratio as a consequence of its delivery as part of a prodrug.

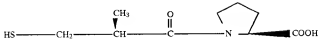
61. (Withdrawn) The method of synthesis of the compound of claim 39 wherein the C moiety has a nucleophilic group that bonds to the B moiety.

62. (Withdrawn) The method of synthesis of the compound of claim 61 wherein the C moiety is derivatized to have a nucleophilic group that bonds to the B moiety.

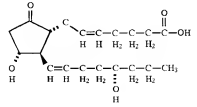
63. (Withdrawn) The method of synthesis of the compound of claim 62 wherein the C moiety is derivatized by at least one of the nucleophilic groups comprising cinnamate, sulfite, phosphate, carboxylate, thiol, amide, alkoxide, or amine.

64. (Withdrawn) The method of synthesis of the compound of claim 39 wherein the C moiety is at least one of the group of

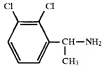
Captopril



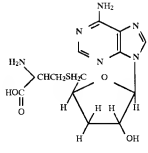
Prostaglandin E_2



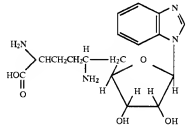
2,3-dichloro-α-methyl-benzylamine



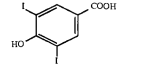
3'-deoxy-S-adenosyl-L-homocysteine



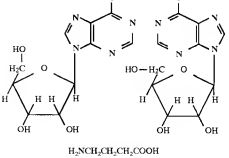
Sinefungin



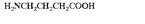
3,5-diiodo-4-hydroxy-benzoic acid



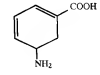
6,6'-dithiobis (9-B-D-ribofuranosylpurine)



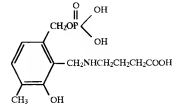
γ-aminobutyric acid



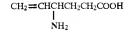
Gabaculine



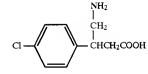
N-(5'-phosphopyridoxy)-4-aminobutyric acid



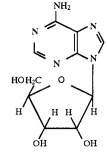
4-amino-hex-5-enoic acid



Baclofen

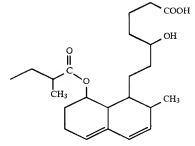


Adenosine

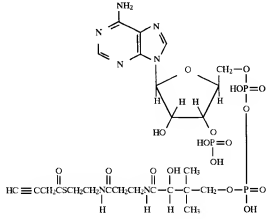


3-hydroxy-3-methyl-glutamte

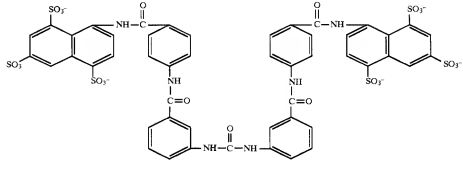
Campactin



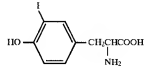
But-3-ynoyl-CoA



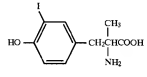
Suramin



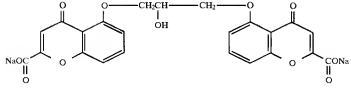
L-3-iodotyrosine



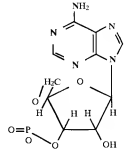
L-3-iodo-α-methyltyrosine



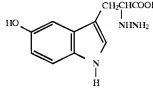
Disodium cromoglycate



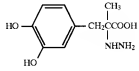
Adenosine 3',5'-cyclic monophosphate



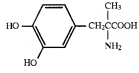
D,L-B-(5-hydroxy-3-indolyl)-α-hydrazinopropionic acid



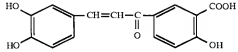
D,L-α-hydrazino-α-methyldopa



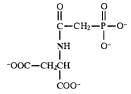
α-methyldopa



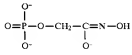
5-(3,4-dihydroxycinnamoyl)salicylic acid



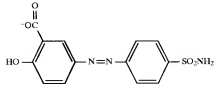
N-(phosphonacetyl)-L-aspartate



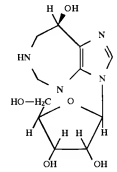
P-glycolohydroxamate



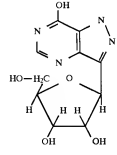
5-(p-sulfamylphenyl-azosalicylic acid



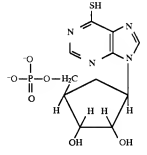
Coformycin



Formycin B



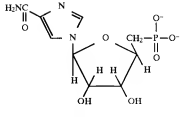
Thioinosinate



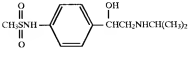
Phosphonoformate

Phosphonoacetate

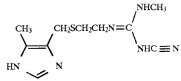
Ridavirin



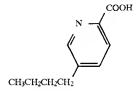
Sotalol



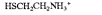
Cimetidine



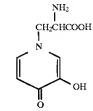
Fusaric acid



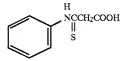
2-mercaptoethylamine



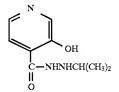
Mimosine



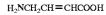
U-7130



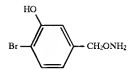
Iproniazid



Trans-4-aminocrotonic acid

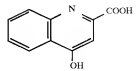


NSD 1055

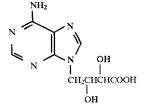


Nicotinic acid

Kynurenic acid

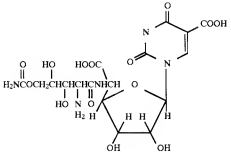


Lentysine

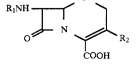


Orotic acid

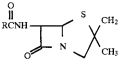
Polyoxin D



Cephalosporin



Penicillin



65. (Withdrawn) The method of synthesis of the compound of claim 39 wherein the A-B-C moieties are attached to P by a bond between P and at least one of A and B.

66. (Withdrawn) The method of synthesis of the compound of claim 39 wherein the E moieties are attached to $(A\text{-}B\text{-}C)_X$-P by a bond between E and at least one of A, B, and P.

67. (Withdrawn) The method of synthesis of the compound of claim 39 wherein the E moieties are enzymes that react with a desired substrate and form substances that cause the

release of C from A-B-C.

68. (Withdrawn) The method of synthesis of the compound of claim 39 wherein the E moieties are enzymes that react with a desired substrate and form peroxide or free radicals that cause the release of C from A-B-C.

69. (Withdrawn) The method of synthesis of the compound of claim 67 wherein the E moiety, substrate, and C moiety are at least one of the group of

glucose oxidase, glucose, and insulin, and

xanthine oxidase, xanthine, and tissue plasminogen activator (TPA).

70. (Withdrawn)A method of synthesis of a chemical compound having the formula $(A\text{-}B\text{-}C)_X\text{-}P$

where the A is a chemiluminescent moiety,

B is an energy acceptor moiety, and

C is a biologically active moiety, and

P is a substrate and x is an integer

comprising the steps of

forming a benzophenone,

forming a diaryl ethylene,

attaching a phthalimide moiety to at least one of the aryl groups of the ethylene to form a phthalimide-ethylene conjugate,

condensing two ethylene-phthalimide conjugates to form a phthalimide-pentadiene conjugate,

converting the phthalimide to the phthalhydrazide by reaction with hydrazine to form a carrier compound, and

reacting the carrier compound with a strong base such as an alkali hydride and the biologically active moiety to form a corresponding conjugate,

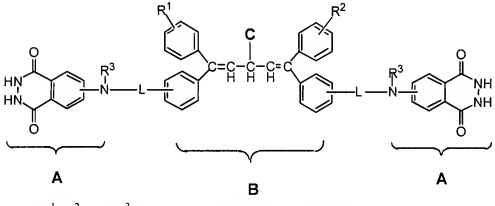
reacting A-B-C with a polymer to form $(A\text{-}B\text{-}C)_X\text{-}P$.

71. (Original) The method of synthesis of the compound of claim 1 wherein one or more of the moieties can be modified to further candidate components by addition of functional groups.

72. (Currently Amended) The method of synthesis of the compound of claim 71 wherein the groups comprise at least ~~on~~ one of alkyl, cycloalkyl, alkoxycarbonyl, cyano, carbamoyl,

heterocyclic rings containing C, O, N, S, sulfo, sulfamoyl, alkoxysulfonyl, phosphono, hydroxyl, halogen, alkoxy, alkylthiol, acyloxy, aryl, alkenyl, aliphatic, acyl, carboxyl, amino, cyanoalkoxy, diazonium, carboxyalkylcarboxamido, alkenylthio, cyanoalkoxycarbonyl, carbamoylalkoxycarbonyl, alkoxy carbonylamino, cyanoalkylamino, alkoxycarbonylalkylamino, sulfoalkylamino, alkylsulfamoylaklylamino, oxido, hydroxy alkyl, carboxy alkylcarbonyloxy, cyanoalkyl, carboxyalkylthio, arylamino, heteroarylamino, alkoxycarbonyl, alkylcarbonyloxy, cyanoalkoxy, alkoxycarbonylalkoxy, carbamoylalkoxy, carbamoylalkyl carbonyloxy, sulfoalkoxy, nitro, alkoxyaryl, halogenaryl, amino aryl, alkylaminoaryl, tolyl, alkenylaryl, allylaryl, alkenyloxyaryl, allyloxyaryl, cyanoaryl, carbamoylaryl, carboxyaryl, alkoxycarbonylaryl, alkylcarbonyoxyaryl, sulfoaryl, alkoxysulfoaryl, sulfamoylaryl, and nitroaryl.

73. (Currently Amended) The method of synthesis of the compound of claim1 wherein the compound has the structure of general formula



(I)

where R^1, R^2, and R^3 are functional groups and L is a linker.

74. (Original) The method of synthesis of the compound of claim 73 wherein the functionality A is at least one of aminophthalhydrazide derivatives, sulfonyloxamides and active oxalates,

the functionality B is at least one of 1,1,5,5-tetrakisarylpentadiene and 1,1,5-trisarylpentadiene derivatives,

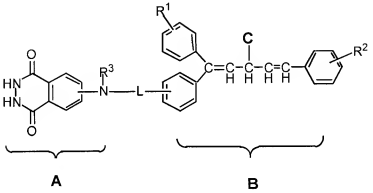
the functionality C is a drug molecule such as Foscarnate, or ddc;, and

R is a functional group, and

L is a linker such as an aliphatic chain between A and B.

75. (Original) The method of synthesis of the compound of claim 74 wherein the L functionality is between one 20 carbon atoms.

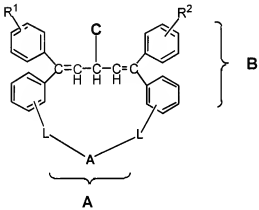
76. (Currently Amended) The method of synthesis of the compound of claim 1 wherein B is a 1,1,5-trisarylpentadiene derivative and the compound has the formula



(II)

where R^1, R^2, and R^3 are functional groups and L is a linker.

77. (Currently Amended) The method of synthesis of the compound of claim 1 wherein A is a sulfonyloxamide or active oxalate and the compound has the formula

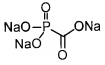


(III)

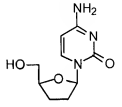
where R^1 and R^2 are functional groups and L is a linker.

78. (Original) The method of synthesis of the compound of claim 1 wherein a luminol derivative is directly attached through one or more amino groups to the aryl groups of a photochromic dye.

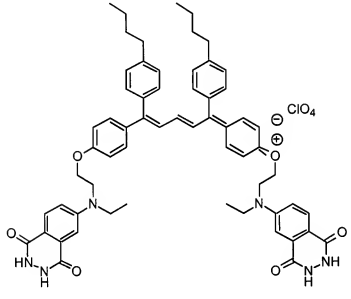
79. (Currently Amended) The method of synthesis of the compound of claim 78 wherein C comprises the formula of at least one of



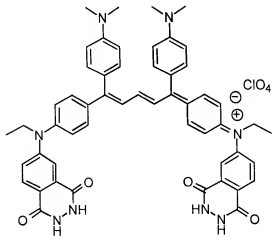
Foscarnet and



ddc , and A-B comprises the formula of at least one of

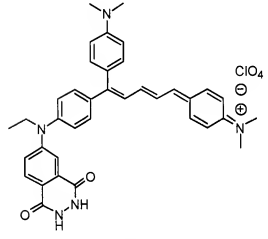


YY99811-1 ,



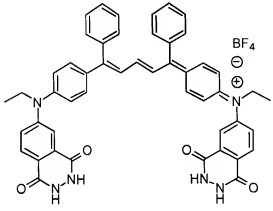
6a

,



GZW2-33-1
$C_{37}H_{38}N_5O_2 \cdot ClO_4$
M.W. 684.20

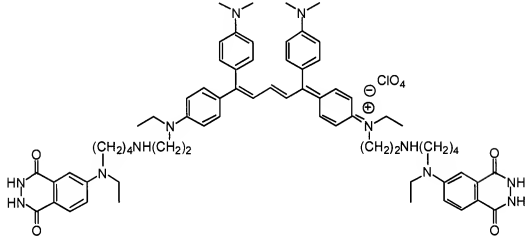
,



GZW1-98-2
$C_{49}H_{41}N_6O_4 \cdot BF_4$
M.W. 864.71

, and

MTLJ-1



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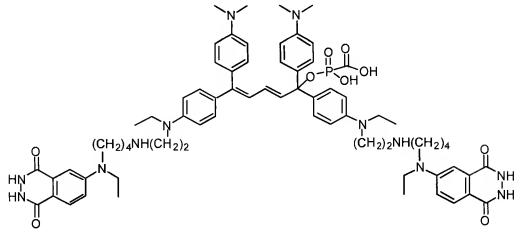
80. (Currently Amended) The method of synthesis of the compound of claim 78 wherein the compound comprises the formula

MTLJ-1-Foscarnet



81. (Original) The method of synthesis of the compound of claim 1 wherein the hydrolyzable group that protects phthalhydrazide is at least one of acetyl and t-butyloxycarbonyl.

82. (Original) The method of synthesis of the compound of claim 1 wherein the aminophthalimide-substituted precursors for the dye are prepared through amination of an aryl halide such as palladium-catalyzed amination of aryl halides.

83. (Original) The method of synthesis of the compound of claim 1 wherein halo-substituted aryl groups of a starting B moiety or an intermediate are coupled with the aminophthalimide by methods such as the aryl amination under palladium catalysis to form the aminophthalimide-substituted precursors for the dye.

84. (Original) The method of synthesis of the compound of claim 1 wherein halo-substituted aryl groups of a starting phthalimide or an intermediate are coupled with the amino-substituted dye by methods such as the aryl amination under palladium catalysis to form the aminophthalimide-substituted precursors for the dye.

85. (Currently Amended) The method of synthesis of the compound of claims ~~83 and~~ 84 wherein amino-substituted aryl groups are obtained by the amination of the halo-substituted compounds with an imine such as benzophenoneimine.

86. (Original) The method of synthesis of the compound of claim 1 wherein the

aminophthalimide-attached dye is formed by the condensation of two aminophthalimide-attached ethylene molecules by reaction with triethyl orthoformate and a strong acid such as perchloric acid in acetic anhydride or acetic acid.

87. (Original) The method of synthesis of the compound of claim 1 wherein during the step of converting the phthalimide moiety to the aminophthalhydrazide to obtain A-B, the B moiety is protected from reaction with hydrazine by reacting with base such as sodium hydroxide, sodium methoxide and amines.

88. (Original) The method of synthesis of the compound of claim 87 wherein the phthalimide-B conjugate with a protected B moiety is refluxed with hydrazine in a suitable solvent such as an alcoholic solvent in inert atmosphere and then treated with acid such as perchloric acid, tetrafluroboric acid to regenerate a corresponding unaltered B moiety of the A-B conjugate.

89. (Original) The method of synthesis of the compound of claim 88 wherein A-B is reacted with one nucleophilic species of C to form A-B-C.

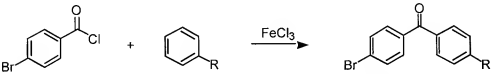
90. (Original) The method of synthesis of the compound of claim 1 wherein A-B is formed by starting with B comprising halo-substituted dyes, such as 1,5-bis(p-bromophenyl)-1,5-bis(p-dimethylaminophenyl)-pentadienium perchlorate.

91. (Original) The method of synthesis of the compound of claim 90 wherein cationic dyes are protected by reacting with base such as alkoxide and then coupled with the aminophthalimide by amination of aryl halide such as the palladium-catalyzed amination of aryl halide to obtain the alkoxide-protecting aminophthalimide-substituted dyes.

92. (Original) The method of synthesis of the compound of claim 91 wherein the aminophthalimide-B conjugate with a protected B moiety is refluxed with hydrazine in a suitable solvent such as an alcoholic solvent to convert the amino-phthalimide moiety to the aminophthalhydrazide moiety and then treated with acid to generate A-B.

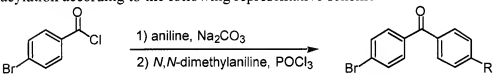
93. (Original) The method of synthesis of the compound of claim 1 wherein the B comprises a tetraarylpolymethine, the aminophthalhydrazide precursor is an aminophthalic acid diester and the conjugate to form A-B is amino-phthalimideluminol-tetraaryl-polymethine.

94. (Currently Amended) The method of synthesis of the compound of claim 1 wherein halo-substituted diarylketone are formed by at least one of direct acylation of arene with halo-substituted benzoyl halide under ferric chloride catalysis according to the following representative scheme



1c: R = OCH_3
1d: R = $O(CH_2)_3CH_3$
1e: R = $(CH_2)_3CH_3$

, and or indirect acylation according to the following representative scheme



1a: R = $N(CH_3)_3$

95. (Original) The method of synthesis of the compound of claim 1 wherein a halo-substituted diarylketone is converted to the corresponding halo-substituted diarylketene such as halo-substituted 1,1-diarylethene.

96. (Original) The method of synthesis of the compound of claim 95 wherein the halo-substituted diarylketene is coupled with a precursor of amino-phthalhydrazide such as aminophthalimide, aminophthalic acid diester, by aryl amination such as the palladium-catalyzed amination of aryl halides to form the aminophthalimide-substituted 1,1-diarylethene.

97. (Original) The method of synthesis of the compound of claim 96 wherein the ethene is condensed with an orthoester such as triethylorthoformate in a nonaqueous solvent such as acetic anhdydide, containing an acid catalyst such as perchloric acid, tetrafluoroboric acid, to form the aminophthalimide-substituted tetraarylpolymethine dye.

98. (Original) The method of synthesis of the compound of claim 97 wherein the aminophthalimide moiety is converted to the aminophthalhydrazide to obtain A-B.

99. (Original) The method of synthesis of the compound of claim 98 wherein the B moiety is a cationic dye that is first protected by reacting with an anion such as hydroxide, methoxide and amine and the phthalimide-B conjugate with a protected B moiety is refluxed with hydrazine in a suitable solvent such as an alcoholic solvent in inert atmosphere and then treated with acid such as perchloric acid, tetrafluroboric acid to regenerate a corresponding unaltered B moiety of the A-B conjugate.

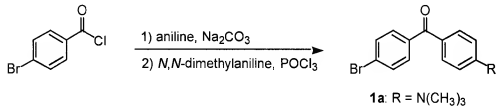
100. (Original) The method of synthesis of the compound of claim 99 wherein A-B is reacted with one nucleophilic species of a C such as a drug 2',3'-dideoxycytidine, Foscarnet, acycloguanosine to form A-B-C comprising a prodrug.

101. (Original) The method of synthesis of the compound of claim 95 wherein two halo-substituted diarylketene precursor compounds are condensed with an orthoester such as triethylorthoformate in a nonaqueous solvent such as acetic anhydride containing acid catalyst such as perchloric acid, tetrafluoroboric acid to form the halo-substituted tetraarylpolymethine dyes such as 1,5-bis(p-bromophenyl)-1,5-bis(p-dimethylaminophenyl)-pentadienium perchlorate.

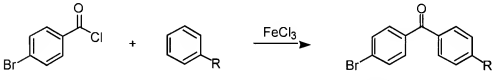
102. (Original) The method of synthesis of the compound of claim 101 wherein the B moiety is a cationic dye that is protected by reacting with an anion such as alkoxide and then coupled with the aminophthalimide by amination of aryl halide such as the palladium-catalyzed amination of aryl halide to obtain the alkoxide-protected aminophthalimide-substituted tetraarylpolymethine dye.

103. (Original) The method of synthesis of the compound of claim 103 wherein the alkoxide-protected aminophthalimide-substituted tetraarylpolymethine dye is refluxed with hydrazine in a suitable solvent such as an alcoholic solvent to convert the amino-phthalimide moiety to the aminophthalhydrazide moiety and then treated with acid to generate A-B comprising a luminol-tetraarylpolymethine compound.

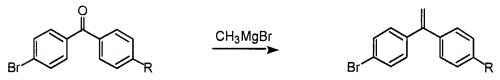
104. (Currently Amended) The method of synthesis of the compound of claim 1 comprising the general steps given by following representative formula



1a: R = $N(CH_3)_3$

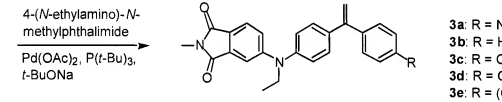


1c: R = OCH_3
1d: R = $O(CH_2)_3CH_3$
1e: R = $(CH_2)_3CH_3$

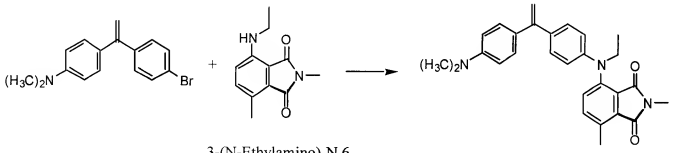


1a: R = $N(CH_3)_2$
1b: R = H
1c: R = OCH_3
1d: R = $O(CH_2)_3CH_3$
1e: R = $(CH_2)_3CH_3$

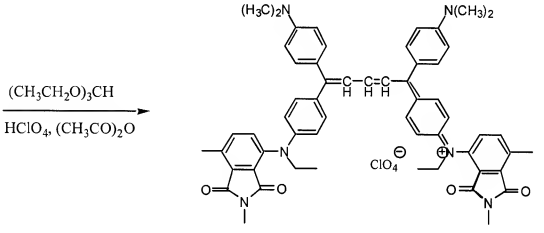
2a: R = $N(CH_3)_2$
2b: R = H
2c: R = OCH_3
2d: R = $O(CH_2)_3CH_3$
2e: R = $(CH_2)_3CH_3$



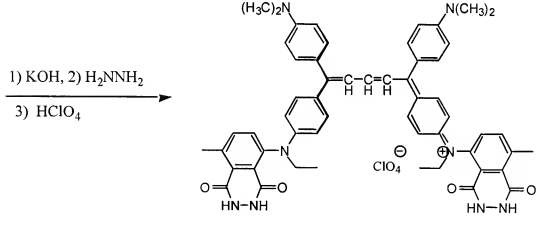
3a: R = $N(CH_3)_2$
3b: R = H
3c: R = OCH_3
3d: R = $O(CH_2)_3CH_3$
3e: R = $(CH_2)_3CH_3$



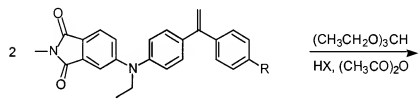
2a 3-(N-Ethylamino)-N,6-dimethylphthalimide **3f**



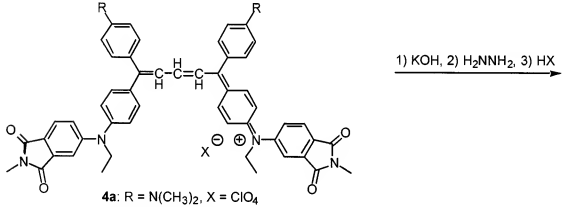
4f



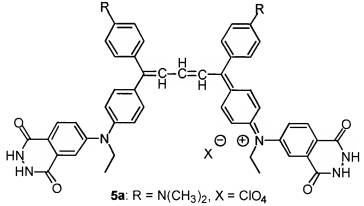
5f



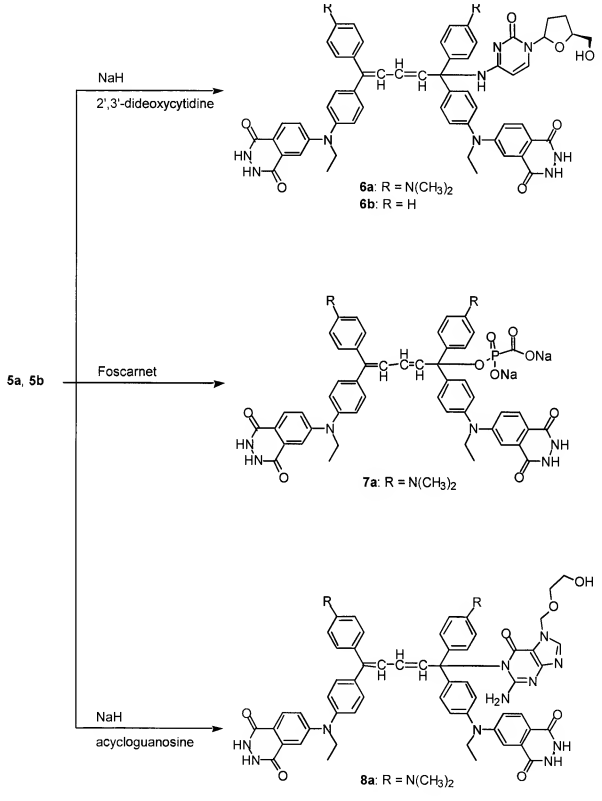
3a: R = $N(CH_3)_2$
3b: R = H
3c: R = OCH_3
3d: R = $O(CH_2)_3CH_3$
3e: R = $(CH_2)_3CH_3$



4a: R = $N(CH_3)_2$, X = ClO_4
4b: R = H, X = BF_4
4c: R = OCH_3, X = BF_4
4d: R = $O(CH_2)_3CH_3$, X = BF_4
4e: R = $(CH_2)_3CH_3$, X = BF_4



5a: R = $N(CH_3)_2$, X = ClO_4
5b: R = H, X = BF_4
5c: R = OCH_3, X = BF_4
5d: R = $O(CH_2)_3CH_3$, X = BF_4
5e: R = $(CH_2)_3CH_3$, X = BF_4



105. (Original) The method of synthesis of the compound of claim 1 wherein the A

functionality comprises a phthalhydrazide such as a luminol derivative and the B functionality comprises a photochromic dye wherein A is attached to aryl groups of B comprising the steps of

forming a diaryl ketone,

forming a diaryl ketene from the diaryl ketone,

forming a protected aminophthalhydrazide such as aminophthalimide or aminophthalic acid diester,

adding a hydrocarbon linker to the protected aminophthalhydrazide, and

attaching the protected aminophthalhydrazide through the molecular linker to the aryl groups of diarylketene to form the precursor aminophthalimide-linked diarylketene, and reacting according to at least one of

(a) forming the A functionality from the precursor, and condensing two molecules of B precursor linked to A to form A-B, and

(b) condensing two precursor aminophthalimide-linked diarylketene molecules to form A precursor linked to B, and

forming the A functionality from the A precursor to form A-B.

106. (Original) The method of synthesis of the compound of claim 105 wherein the diaryl ketone is formed by a classical Friedel-Crafts acylation between a benzoyl halide and aryl compound with a hydrocarbon linker having a leaving group.

107. (Original) The method of synthesis of the compound of claim 106 wherein the aryl compound with a hydrocarbon linker having a leaving group comprises at least one of a halogenated-alkyl-aryl ether and a halogenated-aklyl-aryl amine wherein the halogen is the leaving group.

108. (Original) The method of synthesis of the compound of claim 107 wherein the halogenated-alkyl-aryl ether comprises 2-bromoethoxybenzene to give an aryl ketone such as 4-(2-bromoethoxy)benzophenone.

109. (Original) The method of synthesis of the compound of claim 107 wherein the halogenated-aklyl-aryl amine comprises 2-bromoethyl aminobenzene to give an aryl ketone such as 4-(2-bromoethyl amino)benzophenone.

110. (Original) The method of synthesis of the compound of claim 105 wherein the diaryl ketone is converted to the corresponding diarylketene by reacting with a methylating reagent such

as a methyl Grignard reagent, methyl lithium reagent, lithium dimethylcopper reagent and then dehydration with acid.

111. (Original) The method of synthesis of the compound of claim 110 wherein the diaryl ketone is converted to the corresponding diarylketene by reacting with methylmagnesium bromide and then dehydration with acid.

112. (Original) The method of synthesis of the compound of claim 105 wherein the diaryl ketone is converted to the corresponding diarylketene by a Wittig reaction.

113. (Original) The method of synthesis of the compound of claim 105 wherein a linker is attached to the protected aminophthalhydrazide by a reaction of a nucleophilic group of the linker or protected aminophthalhydrazide with a leaving group of the linker or protected aminophthalhydrazide.

114. (Original) The method of synthesis of the compound of claim 105 wherein a linker is attached to the protected aminophthalhydrazide by reaction to form a bond between at least one of a nitrogen, oxygen, or carbon atom of the linker and at least one of a nitrogen, oxygen, or carbon atom of group of the protected aminophthalhydrazide by an addition or a substitution reaction of a leaving group.

115. (Original) The method of synthesis of the compound of claim 114 wherein a linker is attached to the protected aminophthalhydrazide by a substitution reaction of at least one of a halogen, tosylate group, ester group with a nitrogen, oxygen, or carbon atom.

116. (Original) The method of synthesis of the compound of claim 105 wherein attaching the protected aminophthalhydrazide through the molecular linker to one of the aryl groups of diarylketene to form the precursor aminophthalimide-linked diarylketene is by a reaction of a nucleophilic group of the linker or aryl group of diarylketene with a leaving group of the linker or aryl group of diarylketene.

117. (Original) The method of synthesis of the compound of claim 116 wherein a linker is attached to the aryl group of diarylketene by reaction to form a bond between at least one of a nitrogen, oxygen, or carbon atom of the linker and at least one of a nitrogen, oxygen, or carbon atom of group of the protected aminophthalhydrazide by an addition or a substitution reaction of

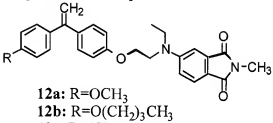
a leaving group.

118. (Original) The method of synthesis of the compound of claim 117 wherein a linker is attached to the aryl group of diarylketene by a substitution reaction of at least one of a halogen, tosylate group, ester group with a nitrogen, oxygen, or carbon atom.

119. (Original) The method of synthesis of the compound of claim 105 wherein the precursor aminophthalimide-linked diarylketene is further reacted by condensation of two aminophthalimide-linked diarylketenes with an orthoester to form B linked to the A precursor.

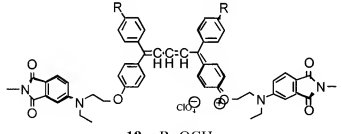
120. (Original) The method of synthesis of the compound of claim 119 wherein condensing reagent is triethylorthoformate.

121. (Currently Amended) The method of synthesis of the compound of claim 119 wherein the precursor aminophthalimide-linked diarylketene comprises at least one of the formula



12a: R=OCH_3
12b: R=$O(CH_2)_3CH_3$
12c: R=$(CH_2)_3CH_3$
12d: R=$N(CH_3)_2$

and the precursor of A-B comprises at least one of the formula



19a: R=OCH_3
19b: R=$O(CH_2)_3CH_3$
19c: R=$(CH_2)_3CH_3$
19d: R=$N(CH_3)_2$

122. (Original) The method of synthesis of the compound of claim 119 wherein the

phthalimide moiety of the A precursor is converted to the phthalhydrazide A functionality by treating with hydrazine, forming A-B.

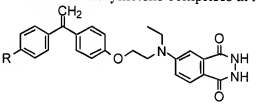
123. (Original) The method of synthesis of the compound of claims 122 wherein the B functionality is protected by reacting with an anion such as hydroxide, methoxide and amine, the A-B precursor is refluxed with hydrazine in a suitable solvent such as an alcoholic solvent in inert atmosphere and then treated with acid such as perchloric acid, tetrafluroboric acid to form A-B.

124. (Original) The method of synthesis of the compound of claim 105 wherein the phthalimide moiety of the A precursor of the precursor aminophthalimide-linked diarylketene is converted to the phthalhydrazide A functionality by treating with hydrazine, forming A attached to a B precursor.

125. (Original) The method of synthesis of the compound of claim 124 wherein the A-linked diarylketene is further reacted by condensation of two A-linked diarylketenes with an orthoester to form A-B.

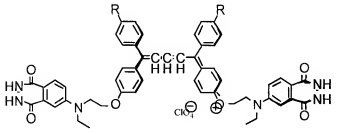
126. (Original) The method of synthesis of the compound of claim 125 wherein condensing reagent is triethylorthoformate.

127. (Currently Amended) The method of synthesis of the compound of claim 126 wherein the A-linked diarylketene comprises at least one of the formula



18a: R=OCH_3
18b: R=$O(CH_2)_3CH_3$
18c: R=$(CH_2)_3CH_3$
18d: R=$N(CH_3)_2$

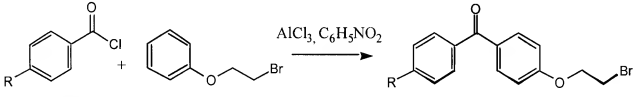
and A-B comprises at least one of the formula



20a: R=OCH_3
20b: R=$O(CH_2)_3CH_3$
20c: R=$(CH_2)_3CH_3$
20d: R=$N(CH_3)_2$

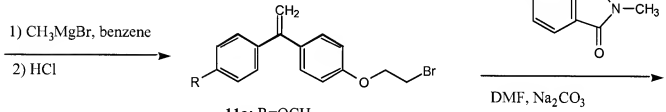
128. (Currently Amended) The method of synthesis of the compound according to any one of claims 123 and 125 further comprising the step of reacting the B functionality with one nucleophilic species of a C functionality such as Foscarnet to form A-B-C.

129. (Currently Amended) The method of synthesis of the compound of claim 105 comprising the general steps given by following representative formula

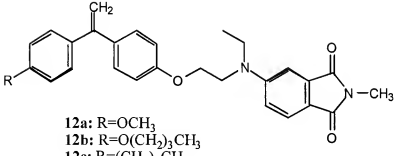


9a: R=OCH_3
9b: R=$O(CH_2)_3CH_3$
9c: R=$(CH_2)_3CH_3$

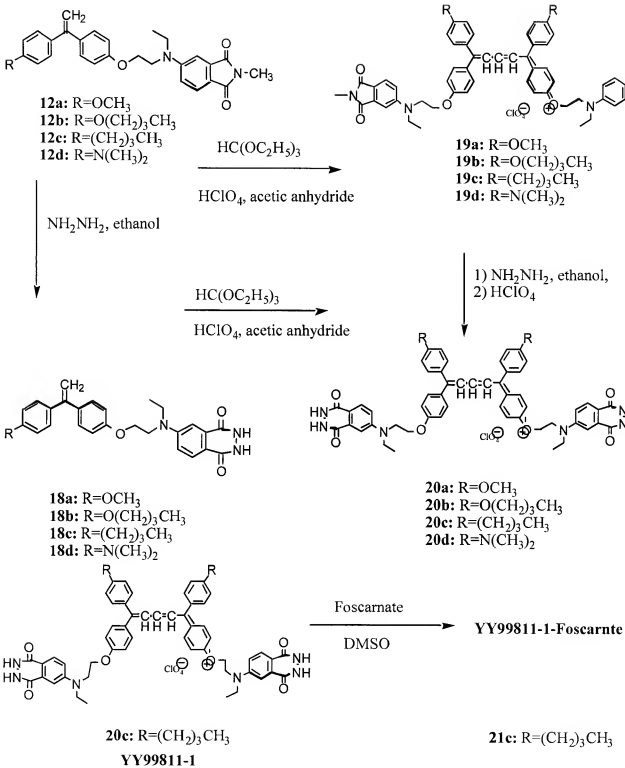
10a: R=OCH_3
10b: R=$O(CH_2)_3CH_3$
10c: R=$(CH_2)_3CH_3$



11a: R=OCH_3
11b: R=$O(CH_2)_3CH_3$
11c: R=$(CH_2)_3CH_3$

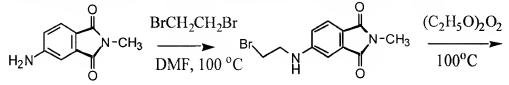


12a: R=OCH_3
12b: R=$O(CH_2)_3CH_3$
12c: R=$(CH_2)_3CH_3$



130. (Currently Amended) The method of synthesis of the compound of claim 105

comprising the general steps given by following representative formula



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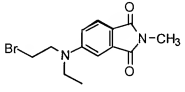

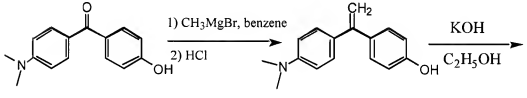

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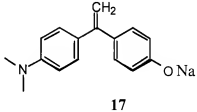

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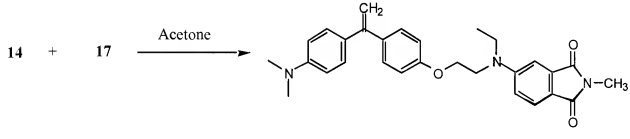
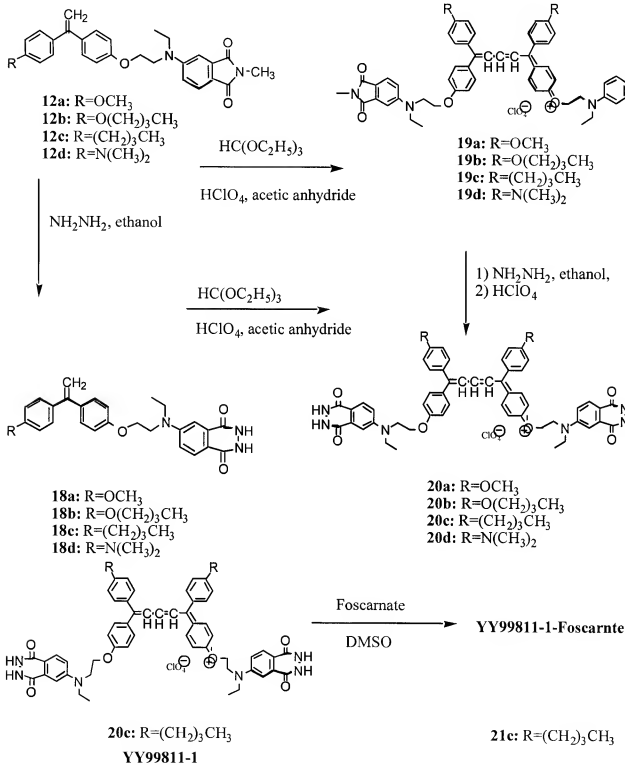


12d



131. (Original) The method of synthesis of the compound of claim 1 wherein the A

functionality comprises a phthalhydrazide such as a luminol derivative and the B functionality comprises a triarylpolymethine photochromic dye wherein A is attached to aryl groups of B comprising the steps of

forming a diaryl ketone,

forming a diaryl ketene from the diaryl ketone,

forming a protected aminophthalhydrazide such as aminophthalimide or aminophthalic acid diester,

adding a hydrocarbon linker to the protected aminophthalhydrazide, and

attaching the protected aminophthalhydrazide through the molecular linker to the aryl groups of diarylketene to form the precursor aminophthalimide-linked diarylketene, and reacting according to at least one of

(a) forming the A functionality from the precursor, and condensing the A-linked diarylketene with an aryl alkene aldehyde to form A-B, and

(b) condensing the precursor aminophthalimide-linked diarylketene with an aryl alkene aldehyde to form A precursor linked to B, and

forming the A functionality from the A precursor to form A-B.

132. (Original) The method of synthesis of the compound of claim 131 wherein the diaryl ketone is formed by a classical Friedel-Crafts acylation between a benzoyl halide and aryl compound with a hydrocarbon linker having a leaving group.

133. (Original) The method of synthesis of the compound of claim 132 wherein the aryl compound with a hydrocarbon linker having a leaving group comprises at least one of a halogenated-alkyl-aryl ether and a halogenated-aklyl-aryl amine wherein the halogen is the leaving group.

134. (Original) The method of synthesis of the compound of claim 133 wherein the halogenated-alkyl-aryl ether comprises 2-bromoethoxybenzene to give an aryl ketone such as 4-(2-bromoethoxy)benzophenone.

135. (Original) The method of synthesis of the compound of claim 133 wherein the halogenated-aklyl-aryl amine comprises 2-bromoethyl aminobenzene to give an aryl ketone such as 4-(2-bromoethyl amino)benzophenone.

136. (Original) The method of synthesis of the compound of claim 131 wherein the diaryl

ketone is converted to the corresponding diarylketene by reacting with a methylating reagent such as a methyl Grignard reagent, methyl lithium reagent, lithium dimethylcopper reagent and then dehydration with acid.

137. (Original) The method of synthesis of the compound of claim 136 wherein the diaryl ketone is converted to the corresponding diarylketene by reacting with methylmagnesium bromide and then dehydration with acid.

138. (Original) The method of synthesis of the compound of claim 131 wherein the diaryl ketone is converted to the corresponding diarylketene by a Wittig reaction.

139. (Original) The method of synthesis of the compound of claim 131 wherein a linker is attached to the protected aminophthalhydrazide by a reaction of a nucleophilic group of the linker or protected aminophthalhydrazide with a leaving group of the linker or protected aminophthalhydrazide.

140. (Original) The method of synthesis of the compound of claim 131 wherein a linker is attached to the protected aminophthalhydrazide by reaction to form a bond between at least one of a nitrogen, oxygen, or carbon atom of the linker and at least one of a nitrogen, oxygen, or carbon atom of group of the protected aminophthalhydrazide by an addition or a substitution reaction of a leaving group.

141. (Original) The method of synthesis of the compound of claim 140 wherein a linker is attached to the protected aminophthalhydrazide by a substitution reaction of at least one of a halogen, tosylate group, ester group with a nitrogen, oxygen, or carbon atom.

142. (Original) The method of synthesis of the compound of claim 131 wherein attaching the protected aminophthalhydrazide through the molecular linker to one of the aryl groups of diarylketene to form the precursor aminophthalimide-linked diarylketene is by a reaction of a nucleophilic group of the linker or aryl group of diarylketene with a leaving group of the linker or aryl group of diarylketene.

143. (Original) The method of synthesis of the compound of claim 142 wherein a linker is attached to the aryl group of diarylketene by reaction to form a bond between at least one of a nitrogen, oxygen, or carbon atom of the linker and at least one of a nitrogen, oxygen, or carbon

atom of group of the protected aminophthalhydrazide by an addition or a substitution reaction of a leaving group.

144. (Original) The method of synthesis of the compound of claim 143 wherein a linker is attached to the aryl group of diarylketene by a substitution reaction of at least one of a halogen, tosylate group, ester group with a nitrogen, oxygen, or carbon atom.

145. (Original) The method of synthesis of the compound of claim 131 wherein the precursor aminophthalimide-linked diarylketene is further reacted by condensation with an aryl alkene aldehyde in a nonaqueous solvent, containing an acid catalyst to form B linked to the A precursor.

146. (Original) The method of synthesis of the compound of claim 145 wherein the precursor aminophthalimide-linked diarylketene is an aminophthalimide-substituted 1,1-diarylethene,

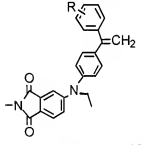
the aryl alkene aldehyde is a p-aminophenyl alkene aldehyde such as p-(dimethylamino)-cinnamaldehyde,

the nonaqueous solvent is acetic anhydride,

the acid catalyst is at least one of perchloric acid and tetrafluoroboric acid, and

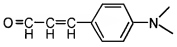
the B linked to the A precursor comprises a aminophthalimide-substituted multiarylpolymethine dye.

147. (Currently Amended) The method of synthesis of the compound of claim 145 wherein the precursor aminophthalimide-linked diarylketene comprises at least one of the formula



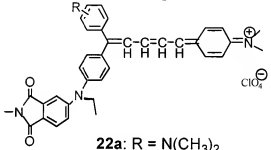
3a: R = $N(CH_3)_2$
3b: R = H
3c: R = OCH_3
3d: R = $O(CH_2)_3CH_3$
3e: R = $(CH_2)_3CH_3$,

the aryl alkene aldehyde has the formula



4-(Dimethylamino)**cinnamaldehyde** , and

the precursor of A-B comprises at least one of the formula



22a: R = $N(CH_3)_2$
22b: R = H
22c: R = OCH_3
22d: R = $O(CH_2)_3CH_3$
22e: R = $(CH_2)_3CH_3$

148. (Original) The method of synthesis of the compound of claim 145 wherein the phthalimide moiety of the A precursor is converted to the phthalhydrazide A functionality by treating with hydrazine, forming A-B.

149. (Original) The method of synthesis of the compound of claims 148 wherein the B functionality is protected by reacting with an anion such as hydroxide, methoxide and amine, the A-B precursor is refluxed with hydrazine in a suitable solvent such as an alcoholic solvent in inert atmosphere and then treated with acid such as perchloric acid, tetrafluroboric acid to form A-B.

150. (Original) The method of synthesis of the compound of claim 131 wherein the phthalimide moiety of the A precursor of the precursor aminophthalimide-linked diarylketene is converted to the phthalhydrazide A functionality by treating with hydrazine, forming A attached to a B precursor.

151. (Original) The method of synthesis of the compound of claim 150 wherein the A-linked diarylketene is further reacted by condensation with an aryl alkene aldehyde in a nonaqueous

solvent, containing an acid catalyst to form A-B.

152. (Original) The method of synthesis of the compound of claim 151 wherein the A-linked diarylketene is an aminophthalhydrazide-substituted 1,1-diarylethene,

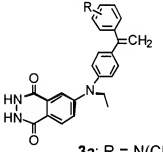
the aryl alkene aldehyde is a p-aminophenyl alkene aldehyde such as p-(dimethylamino)-cinnamaldehyde,

the nonaqueous solvent is acetic anhydride,

the acid catalyst is at least one of perchloric acid and tetrafluoroboric acid, and

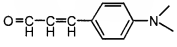
A-B comprises a aminophthalhydrazide-substituted multiarylpolymethine dye.

153. (Currently Amended) The method of synthesis of the compound of claim 152 wherein the A-linked diarylketene comprises at least one of the formula



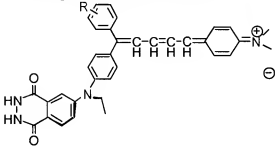
3a: R = $N(CH_3)_2$
3b: R = H
3c: R = OCH_3
3d: R = $O(CH_2)_3CH_3$
3e: R = $(CH_2)_3CH_3$

the aryl alkene aldehyde has the formula



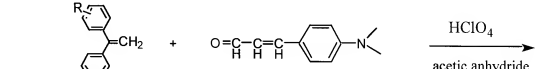
4-(Dimethylamino)cinnamaldehyde , and

A-B comprises at least one of the formula



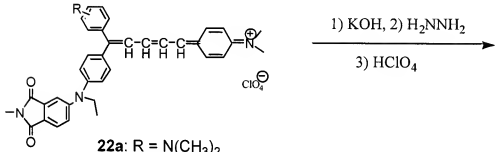
154. (Currently Amended) The method of synthesis of the compound according to any one of claims 149 and 151 further comprising the step of reacting the B functionality with one nucleophilic species of a C functionality such as Foscarnet to form A-B-C.

155. (Currently Amended) The method of synthesis of the compound of claim 131 comprising the general steps given by following representative formula

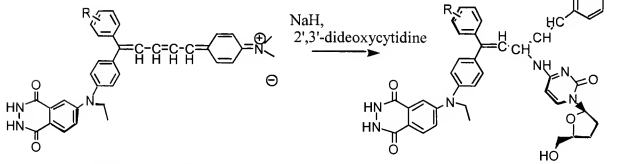


4-(Dimethylamino)cinnamaldehyde

3a: R = $N(CH_3)_2$
3b: R = H
3c: R = OCH_3
3d: R = $O(CH_2)_3CH_3$
3e: R = $(CH_2)_3CH_3$

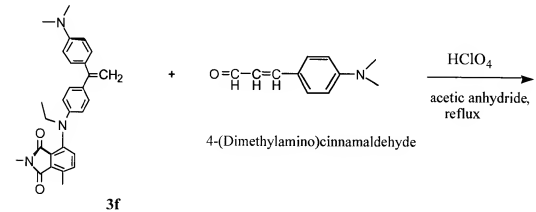


22a: R = $N(CH_3)_2$
22b: R = H
22c: R = OCH_3
22d: R = $O(CH_2)_3CH_3$
22e: R = $(CH_2)_3CH_3$



23a: R = $N(CH_3)_2$
23b: R = H
23c: R = OCH_3
23d: R = $O(CH_2)_3CH_3$
23e: R = $(CH_2)_3CH_3$

24a: R = $N(CH_3)_2$
24b: R = H
24c: R = OCH_3
24d: R = $O(CH_2)_3CH_3$
24e: R = $(CH_2)_3CH_3$



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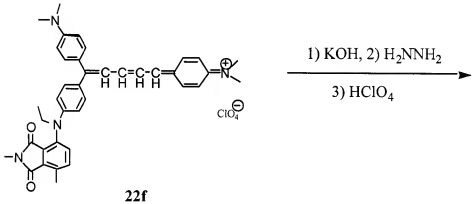
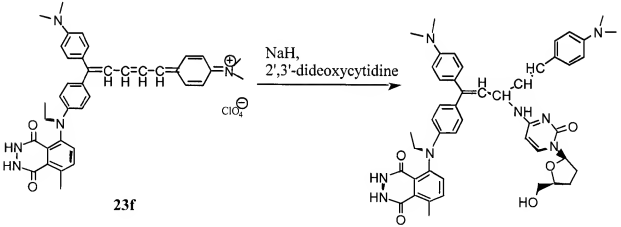


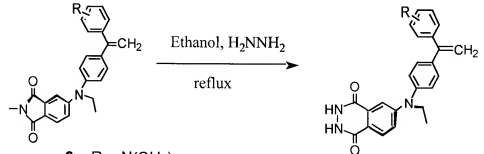
22f



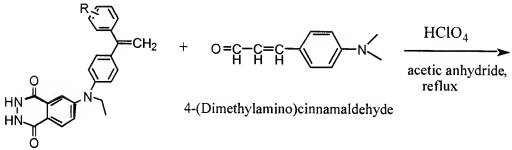
23f

24f

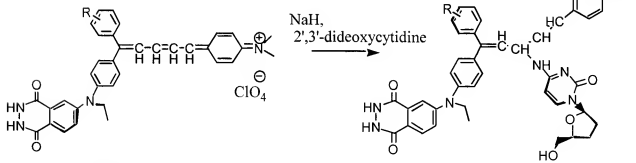
156. (Original) The method of synthesis of the compound of claim 131 comprising the general steps given by following representative formula



3a: R = $N(CH_3)_2$
3b: R = H
3c: R = OCH_3
3d: R = $O(CH_2)_3CH_3$
3e: R = $(CH_2)_3CH_3$



4-(Dimethylamino)cinnamaldehyde



23a: R = $N(CH_3)_2$
23b: R = H
23c: R = OCH_3
23d: R = $O(CH_2)_3CH_3$
23e: R = $(CH_2)_3CH_3$

24a: R = $N(CH_3)_2$
24b: R = H
24c: R = OCH_3
24d: R = $O(CH_2)_3CH_3$
24e: R = $(CH_2)_3CH_3$